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PREFACE

This study was funded through the studies and planning program of the Canada-British Columbia Travel Industry Development Subsidiary Agreement (TIDSA) dated October 17, 1978. The Agreement, which provides a variety of programs for tourism development, is cost shared equally by the Governments of Canada and British Columbia through the Department of Regional Industrial Expansion and the Ministry of Industry and Small Business Development respectively. This study was administered jointly by the Ministry of Industry and Small Business Development and the Ministry of Tourism, and managed by a joint Federal/Provincial Committee.

The Consultants acknowledge with gratitude the assistance and cooperation received from the numerous government and private organizations and individuals during the preparation of this report.

The report and its conclusions is the sole responsibility of the consultants, and does not necessarily reflect the opinions of those who assisted during the course of this investigation and the Federal and Provincial Governments which funded the study.

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Department of Regional
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Ministry of Industry
and Small Business
Development

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TABLE OF CONTENTS

ACKNOWLEDGEMENTS

INTRODUCTION

TOURISM AND HI-TECH: A DISCUSSION

COMPUTERS, TELECOMMUNICATIONS AND TOURISM

1. Information Processing and Delivery
2. Delivery of Products - Reservations
3. Operations
4. Cost Control

SECTOR SPECIFIC TRENDS AND APPLICATIONS

1. Accommodation Services
2. Transportation Services
3. Travel Merchandisers
4. Tour Operators
5. Food Services

CHANGING INDUSTRY RELATIONSHIPS

PRODUCT INFORMATION

BIBLIOGRAPHY

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Views contained in this report are not necessarily those of the Tourism Industry Association of British Columbia or the Federal and Provincial Governments that funded the project. Nothing contained in this report constitutes an endorsement by the Tourism Industry Association, Federal, or Provincial Governments. Although every effort has been made to obtain information necessary to this report no liability is assumed for any information excluded. Information contained in this report shall not be construed as an endorsement by the author, the Tourism Industry Association of British Columbia, the Federal or Provincial Governments.

The author, the Tourism Industry Association of British Columbia, and the Federal and Provincial Governments disclaims any liability with respect to the use of, or reliance, on product mentioned in this report. Nothing in this report shall be construed as a recommendation by the Tourism Industry Association of British

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INTRODUCTION

Scope

The rate and scope of technological change applicable to the tourism industry is too vast to describe in a single report. Therefore, the purpose of this document is to provide an executive summary of important trends with an emphasis on the impact such changes will have on the overall structure and future competitiveness of the British Columbia tourism industry.

In order to provide some boundaries to what could otherwise be a never ending list of technological advances in all kinds of leisure-related industries, we have restricted this investigation to the following core travel sectors: accommodation, food services, transportation and communications. While we concentrate on the technology that is in place now, we also explore the "leading edge" and discuss possible future applications.

The main body of the report consists of four main sections:

* **Tourism and Hi-Tech: A Discussion** - comprises an overview of the "high tech age" and its impact on the travel industry.
* **Evolving Trends** - examines in more detail the type of technological advances that are being adopted for reservations, information services, office support and marketing.
* **Sector Specific Trends** - provides more precise information on the application of recent technology to the accommodation, transportation, food and travel merchandising sectors of tourism.
* **Changing Industry Relationships** - summarizes the implications of these developments for the organization, structure and effectiveness of the industry as a whole.

In order to assist the reader in locating products suitable to their needs, the report also includes a synopsis of product information, vendor location and an unbiased product overview. Every effort was made to include a comprehensive cross-section

of the marketplace. The length of this supplier list illustrates the volume of vendors potentially able to provide the tourism industry with tools for improving their managerial effectiveness.

Method

While no rigid methodology was adopted for this report, data and conclusions were derived from three sources:

1. A comprehensive review of existing literature including books, trade journals, specialist periodicals and conference proceedings.
2. Interviews, both by telephone and in person, of a cross-section of tourism entrepreneurs/managers and vendors of the technology. In order to ensure frankness, candidates were assured of anonymity in the text.
3. Attendance at trade shows, conferences and product presentations.

Approach

If any philosophical bias is brought to this study it is that the computer is merely another tool and its use will never reduce the need for personal resources and human intervention. In fact, the more technology intervenes in our lives, the more there is a need for the human touch. By the same token, to attempt to ignore the impact of "high tech" on the tourism industry is about as futile as it would have been for a 19th century candlemaker to lock himself in a cellar and refuse to acknowledge the invention of gas lighting! This report was, therefore, prepared in order to share information, to reduce many of the fears expressed by industry personnel and hopefully to contribute to the betterment of the tourism industry in British Columbia.

TOURISM AND HIGH TECH: A DISCUSSION

It is neither original nor an exaggeration to observe that the rate, nature and scope of technological change is affecting all our lives in a revolutionary manner. But this revolution is not just about the products of technology. What is relevant and what will alter the course of life as we now know it is the astounding process that is taking place.

Some have compared the impact of computers and electronic communications to that of the printing press in the 1400's (Gutenberg 2); others compare it with the industrial revolution. The celebrated futurist, Alvin Toffler, conceives a "Third Wave" of change as great as the introduction of farming and the invention of the steam engine. Whatever the analogy, it is clear that tourism managers, like the producers of any other goods and services, cannot afford to ignore what is going on in the world around them.

One imaginative group of writers have created "The Techno/Peasant Survival Manual" - a book that demystifies the technology of the '80's. In order to grab their readers attention they coined the phrase Techno/Peasant to describe those of us who may be "a) overwhelmed by what's going on in the various new fields of technology and b) chose to remain ignorant - too uninformed to have a say in our own future. If this is the case, they argue, we are indeed peasants, since the nature and quality of our lives is increasingly determined for us by others."

The reason why this technological change is so revolutionary is that it involves the very process whereby we handle information. Computers are the first invention ever to have significantly extended human mental capabilities. Information is rapidly becoming one of the most widely sought after and, therefore, most valuable resource. And tourism, by its very nature, is utterly dependent on the availability of information. Consumers cannot inspect the tourism product in advance. There's no 90 day warranty on a three week vacation. The product is identified, selected and purchased based on the information

consumers acquire about it beforehand. For this reason alone, tourism managers cannot afford to ignore the latest tools available for producing, manipulating and disseminating information.

But there is another equally sound reason why the tourism industry has to monitor and hopefully anticipate changes in this field. Hi-technology will have a fundamental effect on the way our society is structured and the way members of that society consume products and services such as travel. Society is, after all, nothing more than a collection of potential tourists!

John Naisbitt, author of "Megatrends", has joined Alvin Toffler in showing how large scale transformations are already changing our inner and outer lives. The world is moving:

* from an industrial-based economy to one based on the creation and dissemination of information,
* from a national to a global economy,
* from short-term to long-term prospects in planning,
* from centralization to decentralization,
* from heirarchical structures to a web of informal networks,
* from an either/or society (them versus us) to one providing multiple options in terms of lifestyle, work patterns, consumption patterns, etc.

In short, we are moving away from the concept of supplying a mass market to the need and ability to service an almost unlimited number of highly differentiated sub markets.

There are also sound business and economic reasons for keeping abreast of changes in this field. In a world shrinking in size and where national economies are becoming "de facto" global economies, Canada's tourism product is experiencing stiff international competition. Better informed, mobile consumers are also more value conscious and will quickly identify tourism regions that are catering to their more sophisticated needs. As the price of computers and other electronic communications devices plummet, their effectiveness in reducing operational

costs is growing daily. It is imperative that the industry takes stock of its position and determine where it stands compared to world competition. As a destination to visit, British Columbia is unparalleled. As a destination capable of meeting its market potential it is suspect.

A recent submission put forward to the MacDonald Royal Commission on Economic Development suggested that very few citizens and politicians were aware of what has happened to our economy over the past few years. Canada's poor economic record cannot be blamed on taxation and fiscal policies alone but on our failure to react to changing conditions in the global marketplace. The following observations regarding Canadian business as a whole is highly pertinent to the British Columbia tourism industry:

"Many companies in Canada are faced with the triple threat of:

1. Declining sales,
2. Inadequate equity capital,
3. The progressive obsolescence of their products.

By contrast, some well-managed companies have committed heavily to using technology to:

1. Increase productivity,
2. Reduce manufacturing costs,
3. Increase profitability,
4. Maintain their sales and marketing campaigns even during the current recession, and
5. Place themselves in positions to increase their sales and market shares when the economy does turn up."

Those who have been competing on the basis of technological innovation have been able to outperform all other sectors of the economy.

Not only will modern computer/communications technology affect the way the tourism product is delivered but it will contribute to a fundamental restructuring of the industry. There are still major obstacles to the adoption of useful technologies within the travel industry. Lack of knowledge, fear of the unknown, plus limited financial resources have prevented smaller,

independent operators from keeping pace with the national and international chains. As a result, activity is being concentrated in fewer and larger hands. Automated operations both at home and abroad are gaining competitive advantages.

Futurists predict that society is increasingly polarizing into an elite of professionals and an ever increasing number of low paid service sector employees. A major social upheaval will occur as computers, robots and other forms of automation move into factories and offices. It is also predicted that as many as 5 million workers may be displaced by the end of the decade in Canada. Tourism, already a highly labour intensive industry, is highly vulnerable to such change. As computers are adopted into the back offices of many companies in order to automate tedious accounting, word processing and clerical functions, staffing levels will inevitably fall. On the other hand the educational and skill level of the remaining staff may increase.

Once consumers are able to access sophisticated, multimedia electronic information and reservation systems in their own home the future role of travel agents, reservation agents and counsellors is, at best, likely to undergo fundamental change and, at worst, face extinction. On the positive side, however, is the likely growth of the travel market as increased leisure time creates opportunities for travel that many were unable to enjoy in a "9 to 5" society. In an increasingly "push-button" world, the travel industry may be able to satisfy a basic human need for personal contact and, in the case of travel purchases, the reassurance from a third party that they have made the right choice.

While computers are being brought into the workplace, the telephone took 47 years before it reached better than 50% of its potential market in North America. One major United States consulting firm suggests by the mid 1990's more than 30 million homes will have some form of home information system. This represents less than 30% of all United States homes. Small computers are reaching quickly into the educational system both

in the United States and Canada. This move will surely make for a growing market of proficient users of the new technology.

From keyboard, to touch screen, to the mouse, to speech activated computers, many are becoming comfortable with computers. Talking computers have long been a favorite of science fiction writers. At a recent technology show demonstrations of talking computers, as well as those activated by human voice, were shown. Speech synthesizers produce phonemes, the sounds which make up basic units of human speech. By stringing these phonemes together, speech synthesizers can produce words. Speech recognition units are the opposite of speech synthesizers: they allow a computer to understand spoken commands. Progress is slower because of the subleties of human speech, but progress will soon overcome such obstacles. The ability of activating a home or business computer with the human voice will effectively change the nontechnical, nontyping, machine fearing individual into a believer that computers are indeed helpful, entertaining, and beneficial within todays society.

To draw a compressed scenario, without computers, there would be no Epcot. Epcot, which stands for "experimental prototype community of tomorrow", is the working model of the visionaries at Walt Disney Productions. Computers at the $900 million centre monitor just about everything.

All video, audio, and textual information is transmitted through a buried fibre-optic cable network. Systems control the audio-animatronics, the rides, and information services. Different systems control and monitor fire and security. Still another system manages the central hot and cold water and compressed air production and distribution. Additional computer systems manage the ccmplex and unique waste disposal process for the entire site. There is an advanced vehicle guidance system that provides an automatic, driverless route for the 10,000 kilogram theatre cars, each seating 100 persons. Epcot is a kaleidoscope of the future concentrated in one location. Variations of systems used at Epcot are evident in transportation,

accommodation facilities, communication, and most every part of the tourism infrastructure today.

In case any readers think they can afford to postpone paying attention to this subject, let us consider the sheer pace of change. In just 20 years information processing and communications functions have evolved from milliseconds (thousandths of a second) to nanoseconds (billionths of a second) - a compression of time almost beyond our powers of imagination. It is as though a person's entire working life of 80,000 paid hours (2,000 hours per year for 40 years) could be crunched into a mere 4.8 minutes.

Home business and personal computers represent one of the fastest growing industries in history. If the automobile industry had advanced as rapidly as computers, cars would now cost $2.50 and get over 3 million kilometers for every 5 litres of gas. By 1985, in the United States alone one prediction estimates that over 11.5 million pesonal computers will be in use one for every 20 people in the United States.

Back in 1946, the first heaving, clunking computer called ENIAC (an acronym for Electronic Numerical Integrator and Computer) was invented. ENIAC filled a room, weighed 30 tons, and ran on 19,000 fickle vacuum tubes, one of which blew every 7.5 minutes. The world was awed by its speed - clumsy though it may have been it could whip off 5,000 calculations per second. Now a Californian firm has developed a computer capable of 200 million calculations per second.

Not only are computers becoming more powerful and faster, they are now that much more accessible to computer illiterates who still make up the bulk of the population. Up until a short time ago, the need to learn one of many computer "languages" created a stumbling block for many. At one recent computer technology conference it was acknowledged that the future of computers will depend on the ability of manufacturers and programmers to make systems "user friendly".

A variety of techniques are being used to increase the

"friendliness" and accessibility of computers to the user; for example, commands can be activated by touching the display screen or pressing one button on a "mouse". Great progress is being made with speech activated computers and, once this development is perfected, it is likely that the nontechnical, nontyping, machine fearing individual will be converted into an enthusiastic believer in and proponent of the tools at his or her disposal.

Leaders in the technology business and in particular those in personal computers suggest that consumers will see a more uniform approach to hardware, software, peripherals and applications in the future. Features will be standardized. Documentation will be significantly improved and user friendliness will be industry wide. The home market will continue to mushroom as prices continue to decline and products show even better value.

Despite these compelling reasons for adopting various aspects of "high-tech" into the tourism industry, there is little evidence to substantiate much progress in this field. Attitudes recorded in our interviews ranged from "wait and see", "cannot afford the luxury", to "I have always run my business this way. Who needs it?" Plus, there is another factor that can best be described as "shoebox technology". In many businesses, there is no wish to have a precise, documented manner of management. The low levels of managerial skills within the tourism infrastructure produce an environment in which new ideas are often resisted.

In many cases, the capability of modern technology far exceeds the managerial abilities of tourism entrepreneurs. As a result, there is a desperate need not only to educate industry personnel on how to work the new machines but, more importantly, how to act on the information they make available.

The most frequently posed question was "How will technical applications make us more money?" Most hotels in British Columbia are owner operated. One person is the owner, operator, financier, investor and is responsible for locking the door each evening.

As a result, it is difficult to have individuals participate in educational upgrades or accept a new venture when they are fully occupied with the venture they already have. On the other hand, larger chain hotels with computers reflect an overflow of statistics with little "people" time to digest their significance. Differences in attitude within the British Columbia tourism industry to technology was from one extreme to the other.

Government, as well as industry, must take the lead in appropriate education and ensure that the industry is able to take advantage of the training that new entrants can offer. We have found that at the school level there is a relaxed and comfortable feeling with technology that is absent among current middle and upper management in hotels and other tourism sectors.

The current recession could have been less devastating if the information available had been used, understood and then acted upon. Technology now offers even the layman tracking capabilities, projections and cash flow analysis. It offers information on trends and probabilities. Hardware is no longer expensive nor is it overly sophisticated. It is simply a matter of accepting new ideas, developing new attitudes and utilizing the tools at hand.

Given the decline in British Columbia's primary industries: forestry, mining and fisheries, tourism is quickly becoming the province's number one marketable resource and source of foreign exchange. But an absence of adequate training for the labour force, an absence of managerial and marketing skills plus a resistance to social and technological change could, unfortunately, prevent this sector from achieving its full productive potential. If tourism is to play a vital, positive role in the recovery of both the provincial and national economies, it is vital that technical, marketing and managerial skills be upgraded immediately.

Summary

Members of the tourism industry must inform themselves of

technological change for the following reasons:

1. Tourism is utterly dependent on the effective production and dissemination of information. Most "high-tech" developments concern information processing.
2. Lifestyles and consumption patterns are changing in response to technological developments. Fresh new marketing approaches will be required to service better informed, more demanding customers.
3. Failure to use the technology effectively will mean failure to compete with those companies already forging ahead.
4. Failure to be informed regarding societal change will result in failure to seize new marketing opportunities.
5. Like the incoming tide, the "high-tech age" is rolling in and change is taking place at almost revolutionary speed. To wait is to be left behind, or indeed left out.
6. Failure to prepare and retrain tourism's labour force, including management, will prevent the industry from achieving its full productive potential.

The remainder of this report comprises a summary of specific developments as they affect the three major sectors of the tourism industry: accommodation, transportation, and travel merchandising.

COMPUTERS, TELECOMMUNICATIONS AND TOURISM

Tourism has always been sensitive to technological change. The development of large steam-driven ocean-going passenger lines brought the USA within five or six days reach of Europe and initiated a two-way tourist flow. The jumbo jet not only reduced the cost of travel over greater distances but also radically altered the way travel was sold. A new tour packaging industry evolved to provide and develop destination resorts at distant locations.

The period of growth and change that tourism is now experiencing is not due to better ways of moving people but faster more efficient ways of handling information. Advances in computer and communications technology are drastically reducing the amount of time and money required by tourism operators to service their customers. The marketing and organizational implications of these trends are as great - even if less immediately obvious as the expansion of railroads in the 19th century. While changes in jet travel altered the structure of tourism trade, the latest technical changes will alter the industry's key organizational relationships.

Because tourism is a communications industry based on serving the needs of the traveller, it is the combination of computing and telecommunication trends that will have the most dramatic affect on the industry. Travellers are critically linked to the effective communication of information. Without a reliable supply of travel information to the tourist, service firms would be inaccessible. Changing modes of information communication will, in turn, alter travel patterns. The use of these technologies is ideally suited to tourism service firms because of the large amount of time sensitive information that has to be communicated and processed.

It is apparent that not all travellers, tour service firms and travel agents will have access to this new evolving web of business and communication. Small motels, rurally located travellers and travel agents will still survive on hand accounting

and reservation methods using a phone and typewriter. While this method can be efficient and effective for a number of services, tourism businesses will find that the broader their market area, the greater will be the need for more sophisticated means of conducting business. Changing markets will require electronic methods of market sale - traditional markets may dwindle, thereby forcing firms to apply new techniques.

The technologies of computerized data processing and electronic communications are having their major impact in the following areas:

1. The delivery of information to agents and consumers,
2. Reservations ie; the delivery of product to consumers,
3. Operations management, either in
    1. Office support (accounting, word processing, financial analysis, etc.), or
    2. Production of goods and services (transportation maintenance programmes, point of sale and food beverage control systems in restaurants, airlines or flight planning,
4. Marketing.

The remainder of this chapter will comprise a more detailed look at the development in each of these areas.

1. Information Processing and Delivery

The latest and most revolutionary developments stem from the combination of computer and telecommunications technologies.

1.1 Videotex

Interactive videotex is an electronic information and message sending system. As a two-way communication medium it is designed for all users. Information stored in computer data banks is communicated as text and graphics via telephone or cable lines to a television screen located in offices, homes, or public areas such as shopping malls, hotel lobbies, airport lounges, etc. The key to this technology is the various modes and applications of communication that it allows. This system can connect home, office and public terminals for a specific purpose such as reservations, information or even to allow distant

shopping. In the U.K. and elsewhere, a number of videotex networks have been established to provide travel related information and services for travellers and principal firms.

The British systems are model cases in point. The public service, known as Prestel and operated by British Telecom, is intended for general business and public users. Approximately 25% of all information stored on Prestel is for travel related purposes. Information covers most travel schedules and related information such as exchange rates.

A typical private system, developed for a closed group of users, is the gateway multi-access reservation service of Prestel. It has a "Skytrak" network allowing the association of British travel agents access to the data bases of certain airlines and hotels to make electronic confirmations. This system is similar to North American airline reservation systems but it has the added advantages of being multi-access, independent, and based on a videotex technology that permits a more graphic and understandable mode of communication.

1.2 Private Terminal Access

Similar to public information and reservation systems, the linking of private terminals to certain data lines enables travellers to seek information from their home. Reservations and billing functions can also be performed from the home terminal.

INet, the information network, provides both tourists and the industry serving them with a new source of ideas as to where to go and what to do. INet brings information seekers and information suppliers together in a universal network that uses a simple series of commands to access the many data bases available in a wide variety of subjects.

All that is required to use INet is a terminal (any of those with an ASCII code set), and accreditation to the system. For the tourist industry, there are a number of informative data bases available which list points of interest, accommodations, shopping and entertainment in many cities.

Hotels, tourist bureaus both public and private, and other institutions could make particularly good use of INet in supplying information to the tourist, with resulting benefits to both the user and suppliers of the information.

Two American companies have developed videotex interfaces with airline systems. These videotex on-line services cost users about 2 to 4 dollars per session to scan all flight plans, make a reservation and pay for it directly. In addition, an electronic version of the official airline guides (OAG) is rapidly gaining in private use popularity. Soon, the public can be accustomed to private reservation and information systems. Two Canadian companies are developing a videotex system which contains travel information. One is predicated on traditional videotex and graphics. The other, utilizes computer controlled laserdisc systems allowing information retrieval in text, text and graphics, still frame photographs, full motion video, dynamic text and graphic overlays and dual channel audio, allowing for stereo or a two language option.

Such systems offer a revolutionary new marketing tool. The systems form an electronic publishing basis not yet fully understood by advertisers, their agencies, or the consumer. Beta tests have been continuously probing for the market intelligence needed to harness this powerful new resource. Once established there is little question it will alter the means of marketing tourism products between supplier and buyer.

2. Delivery of Product

2.1 Reservations Systems

As noted in chapter 1, the tourism product cannot be removed from the shelf and delivered to the customer. Instead, the product is essentially a complex, temporary and intangible web of experiences and supplies available at a fixed location. Many consumers may purchase the same product, but few can do so at the same time. The only way a consumer can be sure of being able to enjoy a given product when he or she wants it, is to reserve a right to the product for a specific time period.

Delivery of tourism products and services therefore depends on efficient reservation systems.

Reservation systems are built from a combination of a centralized computer, telecommunication lines, terminals and monitors. Such systems can be developed for varying degrees of access by tourism companies or individual clients. At the firm level, an operation could be linked into a combination of travel agent terminals, public and private (home) terminals, and their own reservation desk to facilitate product delivery. The extent of system integration directly influences market access.

Central to the development of a reservation system for a firm is its operational system. Without a centralized computer within the firm, the scope of integration is limited. Once a base is established, integration with various agents, and the public or private reservation systems is just a matter of a telecommunications connection. Telephone based systems provide an alternative to computer linked facilities. Toll free lines provide direct access.

Larger, especially chain firms in the car rental, hotel and airline sectors have developed private reservation networks. These firms have become integrated with most travel agents on an almost global scale. In addition, they have created private reservation networks connected by telephone and computer terminals to sell their product direct.

Each reservation and information system is a marketing tool for all participants. Sales are stimulated and completed through these electronic networks. While a range of different systems are evolving, a debate on the extent of system coverage for travellers and services is brewing. While larger properties and transport companies are represented by their own or other networks, many services provided by "independents" are not included.

One of the pending judgements of reservational systems surrounds their effect on the smaller operator. As a result of the rapid increase in the number of reservation networks operated by the

large chains and directly linked to travel agents, experiments with private subscriber reservation systems and sector organization/governmental systems are evolving.

Although most airline systems are developed solely for travel agents to facilitate airline sales through agencies, the airline reservation networks are diversifying the number of services to include hotels, car rentals, bus transport, etc. While airline systems aid the agent, airline and traveller, other systems have been evolving based for hotel networks, car rentals and broader regional multi-service systems.

There are two types of reservation systems: privately controlled networks such as Holiday Inn's Holidex Network and broader based private or public reservation networks like "Check-Ins" based in Nova Scotia or "Reservations West" from British Columbia.

Check-Ins Nova Scotia is a publically supported computerized reservation and information service consisting of hotels/motels, campgrounds, car rental agencies and a complete information system for the province of Nova Scotia. Designed for the individual traveller, group or convention planner, tour operator and the travel agent, reservation and information functions can be accessed through a network of toll-free telephone lines in Canada and the United States. Many consider the Check-Ins system to be a cadillac of reservation networks due to its multi-access coverage. Its inherent disadvantage is it is government subsidized.

Reservations West currently runs a province wide reservation system covering over 170 properties. Toll-free lines in British Columbia and Alberta link the represented properties to a larger market area. Reservations West is a private company operating like a rental agency charging fees to property owners for bookings. Its inherent disadvantage is lagging support by the private sector. This could change with the recent announcement that the British Columbia Government has selected Ariel Information Systems and Reservations West as candidates to operate a province wide reservations system under contract for an initial

five year period. This endorsement may pull the private sector together if only that no one wishes to be left out. Although the Check-Ins system and Reservations West form a stop gap with respect to blanket accommodation and reservation possibilities, neither will satisfy the market place at large. With new communication technologies the trend is for a direct link between buyer and supplier. For the most part this trend will prove to be the most satisfactory of the lot.

Private networks like Holidex link a number of cooperating properties into a centralized reservation network. These services are most common among franchise and chain firms which sell similar products. Such larger systems are linked globally stimulating sales from all points. In April 1984, the British tourist authority became the first foreign tourist office to have its information available on an American airline reservation system known as "Sabre". If successful, BTA hopes to get other tourist offices to join in.

The difference over these systems is clear. While Holidays Inns has developed their own network, other systems such as Reservations West offers a multi-user service. At a different level, multi-access systems like airline systems and Check-Ins Nova Scotia offers a greater variety of services including large and small scale properties. While airline systems are designed for Travel Agents, systems such as Check-Ins is designed for consumers at large. Ariel Information Systems and Reservations West are sure to increase their multi-user service once under full operation prior to 1986.

While most services in the tourism industry depend on information dissemination and reservations, the type of reservation systems adopted will directly influence which businesses are exposed to the market. In efforts to develop exposure to a broader market, firms are either developing their own system or adopting access to other systems. Although the costs of developing a system for smaller firms is prohibitive, multi-user systems such as Reservations West and Check-Ins allows a more efficient representation of firms.

Control over funding, access and content are the three central policy issues surrounding reservation and information systems. Financial support for reservation systems has been made by private and public bodies. Private systems are funded and developed to gain market advantages for participating firms. Public support for systems like Check-Ins has been rationalized as follows:

1. There is a more efficient use of underutilized facilities,
2. There is a marked advertising advantage stimulating foreign travellers to visit. Reservation systems form part of public support for market acces, and
3. Supports a tracking device allowing for progressive marketing analysis and correction.

Firm, user and breadth of access to reservation systems shapes the impact of reservation and information networks in the tourism industry. The broader the system breadth, the more areas and competitive regions it covers. However, a general information system can allow travellers to survey all possibilities. Firm access is a critical issue. Those represented form part of a confined map of the region while others are excluded. User access can be limited to system operators, travel agents or opened to the general public.

It is evident that, over the next decade, a rationalization of reservation and information systems will occur. As small and large services evolve the extent and significance of travel habits will become evident.

The most successful will be those where private sector carry the freight without Government handouts. It's simply up to the private sector to support itself.

2.2 The Smartcard

Similar in design to a credit card, the smartcard can memorize, store and process information through its memory chip. This card has application for security, banking, identification and other purposes. The smartcard is a wallet-size computer that immediately debits the purchaser's bank account and records

the transaction. The smartcard was first developed in France in 1974 by Roland Moreno, then 28. The key is a silicon microchip that can instantaneously store and retrieve data. The card makes it possible to buy merchandise, take out loans, transfer funds and obtain statements of account without ever going to the bank or writing a cheque. The card will eventually be programmed for any number of functions. It can pay bills, store personal medical history, or serve as a passport. The applications in electronic retailing are unlimited.

The smartcard resembles a credit card. The difference is that it contains, embedded between layers of plastic, one or more silicon micro-circuit chips which are programmable, intelligent, and have memory storage capabilities. It is labelled as the ultimate transactional vehicle. The card memorizes everything it does. It has its own security number known only to the holder. Security is ensured if the card is misused. After three unsuccessful attempts to enter a number the card will not allow any further numbers to be tried. In France it is currently used in point of purchase sale systems to purchase items. It can be used to dial another location. Monetary values can be stored in the card.

Another version of a smartcard is currently underway in the United States. It is a laser-recorded stripe on the back of a conventional looking credit card. Drexler Corporation, the developer of the Drexon laser card, suggests the card will have the ability of high-density storage giving rise to a multiple number of uses. The approach, be it laser or microchip, has a potential yet to be discovered. Intelligent cards are projected to obtain wide spread use within the next 10 years.

The smartcard is now capable of recording up to 200 transactions, this is expected to multiply by 10 by year end. A number of functions similar to automatic teller devices will change the method of billing at various service outlets. For example, coinless telephones, automatic check-out systems and pay television could all be operated from these cards. A certain

amount of cash can be transferred onto the card and slowly withdrawn as services are billed.

3. Operations

3.1 Back Office Systems

These systems can form the heart of any firm's operation. Operating as a centralized information processing facility, a number of general and specific business applications can be performed through an in-house computer. Applications include general ledger, payroll, purchasing, ledger, inventory control and management reports.

A typical back office system consists of a micro or mini computer processor with a number of terminals located around the firm for various uses. These systems change the structure of the workplace with an added dependance on a central processor. Recent advances in computing technology have made the processor applicable to most work situations.

The introduction of a centralized back office operation centre enables a firm many opportunities beyond general business application. Monitoring systems for energy, security and safety controls can be routed through the central computer. Energy systems monitor energy use for the property reducing usage when necessary and notifying maintenance staff of needs. Security systems are designed to integrate new forms of electronic lock and surveillance devices into a central monitoring location. Safety systems provide smoke and fire detectors, central annunciator and control centres which notify authorities and people located on the property to aid evacuation.

Perhaps one of the most fruitful uses of a back office system is its integration with the front office and other systems. Integrated reservation, client record and inventory systems provide an excellent source of market intelligence information for marketing and product delivery functions.

3.2 Front Office Systems

Front office systems are designed to transfer information from

the client to the firm for administrative and marketing purposes. These systems process client transactions at a detail level storing, ordering and accounting the transaction for a number of related purposes such as inventory management, billing, room, seat or food check, and information transfer to relevant locations. Systems capable of inter-terminal point-of-sale communication allow front reception staff to be constantly updated on client transactions throughout different aspects of a firm. For example, client records can be tracked through hotel sales in gift stores, coffee shops and lounges.

For marketing purposes, the combination of front and back office information retrieval provides each firm and combination of firms with a market specific data source. Client records enable target advertising and client sourcing. At a broader scale, the combination of these systems with telecommunication devices has opened up the whole field of marketing and methods of product delivery.

3.3 Communications

Advances in telecommunications application to the workplace have been proceeding at a rapid pace since the deregulation of telephone systems in the United States. Similar decisions are pending in Canada. A number of new devices now make the workplace more efficient and the transfer of information free of spatial barriers.

3.3.1 Telephone Based Applications

Recent developments surrounding the telephone have revolutionized methods of business and personal calls, and methods of charging for telephone calls.

When so much effort is devoted to new methods of sales training, market research, inventory control, distribution systems, and media effectiveness, it is surprising that so many companies need to explore the new techniques and systems which expand the potential of the telephone into these areas.

The advantages of using the telephone as a sales communication channel are self-evident. It is direct, personal and immediate. It is universal. It requires minimal investment in hardware. The telephone is used by all companies in their selling activities as a matter of course but seldom in a planned and systematic way.

The largest supplier of communications equipment in British Columbia is Business Telecom Equipment (B.T.E.). B.T.E. offers a broad range of products manufactured by internationally recognized firms such as Microtel, Northern Telecom, Mitel, Tie, Digital and others, with new products being constantly evaluated and tested before introduction. These products include:

1. Private Branch Exchange (PBX)

The PBX (or switchboard, as it is commonly known) has developed quickly in the last decade. From the old manual cord exchange which was cumbersome and unreliable, to the computer controlled exchange, which, through software and hardware advancements, "switches" voice and data messages with extreme speed and accuracy.

The computer controlled PBX is fast evolving into the "HUB" of office communication. PBX and computer manufacturers are cooperating to interface the two technologies to establish industry standards.

One example is the GTD 1000, a computer controlled PBX manufactured by Microtel. The GTD 1000 is especially suited to the hotel segment of the industry. It can serve just over 1000 telephones and 15 modular in growth, allowing each application to have exactly the correct equipment to ensure cost effectiveness. Two examples of the GTD 1000 system are to be found at the Richmond Inn and the Delta River Inn.

The Northern Telecom SL1 system, developed in 1976 in Canada, serves up to 5,000 telephones in many business applications around the world. It has proven a very reliable and flexible product. The SL1 is constantly being updated; the manufacturer is now developing voice-data capability with a series of

enhancements planned in 1984-85. Technology has enabled the SL1 to provide communications not only for people but also for computers.

There are 6,000 SL1 systems in service world wide and approximately 100 systems in British Columbia.

Attached to computer controlled PBX's are a multitude of telephone instruments from the standard and multiline to advanced phones with digit display capability. These displays include called/calling number, time, date, and messages utilizing light emitting diodes (LED) or liquid crystal (LCD). With this selection, the PBX can be tailored to meet any organization's requirements.

2. Electronic Key Telephone Systems (EKT)

These systems have evolved from automatic key telephones to fully electronic with computer controlled memories and other devices, resulting in very sophisticated instruments. While the controlling equipment performs much the same as the PBX, the telephone itself enables the user to instantly access lines to make and receive calls. Some of these telephones have exotic features such as call timers, clock and calendar, memory dialer plus many time saving features operated by keys instead of dial access.

3. Data Equipment

Voice and data terminals offer managers and professionals streamlined, desk top communication capabilities. Products like display phones, with integral data sets, enable telephone system access with sophisticated voice/data work stations.

3. Operations

3.1 Message Waiting

Message waiting, available on many hotel systems, uses visual (lamp) or audible (bell) signals on the room telephone to notify the guest of any messages taken by the hotel operator. The feature is activated by the attendant when a message is taken. The room phone automatically signals at predetermined intervals.

3.2 Room Status

A room management feature which allows front desk access to constant status of each room. Housekeeping staff may indicate room status (ie; occupied, empty, clean, cleaning required, etc.) by dialing a code which is stored in the system memory.

3.3 Automatic Wake-Up

Automatic wake-up allows the attendant or guest to establish a wake-up call. The system will automatically call the room telephone at the desired time. This feature allows the attendant more time to process regular calls or handle other duties.

3.4 Room Service Applications

Specialized telephones available on some systems, allow room service personnel to identify and confirm which room has initiated a request. The room number is displayed on the telephone at the service desk.

3.5 Teleconferencing

Tele or video conferencing is a meeting of two or more people, transmitted by satellite, to one or more locations via closed circuit television. Groups, particularly large national corporations or associations, having to transmit and communicate over a number of matters, can turn to videoconferencing as a cost effective alternative to travel meetings.

A natural relationship exists between hotels and videoconferencing. Besides being geographically well dispersed, the flexible meeting space of hotels allows various seating arrangements to suit all meetings. With minimal effort, meeting room fees, and food service revenue can be generated. It is not essential for a hotel to own its own system, since there are a number of independent operators who can set up a portable facility for any specific meeting.

There are three major forms of teleconferencing which will most likely become common forms of business life. Audio conferencing is based on multi-access telephone communication with the potential use of some graphic messages. Computer conferencing is based on interterminal dialogue between users signed on to

the same network. Video conferencing is based on video transmission of dispersed groups of people enabling visual and verbal communication.

Video pictures can be bounced off satellites into small theatres or rooms with 360 degree screens simulating a remote environment. Sights via robot cameras, and accompanying sound directly from live remote locations can create an illusion so real the senses are satisfied it is real. Such remote telecasts already take place in the field of medicine. With modifications and simulation techniques similar to airline simulators the experience of travel can all take place without going anywhere. Such travel alternatives will be a reality.

It is suggested the use of video systems may lead to considerable reduction of business travel. Advances in teleconferencing techniques, fast declining costs, higher air fares and the economic imperative that more efficient use will be made of workers are all factors which are expected to increase electronic communication and decrease travel over the next 20 years. Some believe that instead of moving people it will be information that is moved. United States companies are expected to spend over $4.0 billion dollars on teleconferencing equipment before the year 2000. The author, however, suggests little evidence to suggest teleconferencing will displace face to face people interaction but rather compliment it.

It is evident that a small teleconferencing industry is evolving based not only on the hardware but on the production and design of meetings. There now exist meeting and production planners, conferencing centres and portable conferencing terminals allowing teleconferencing to be performed wherever there is telephone access. It is both a new way of conducting business and a new method of earning revenue.

3.6 Voice Messaging Systems

A generation past telephone answering machines, voice messaging systems store and sort telephone messages from callers. Voice

store-and-forward (messaging) systems have the capability to digitize voices and store them for later retrieval. Voice messages are compressed into a manageable amount of data. Once the voice data is stored, it can be manipulated like all data. Voice messages can be sent to one person or several at once. Users can receive and send messages at their convenience instead of wasting time on misdirected or waiting for telephone connections. 75% of all business calls do not reach the intended party on the first try. The abiquitas the pink message is just a notation of one party to reach another.

4. Cost Control

4.1 Call Detail Recording

To enable an organization to effectively manage and control the costs of a telephone system, B.T.E. offers a call detail recording (CDR) system. This information is of great value in properly allocating funds to each department within the business.

In association with a printer, the CDR machine gives detail such as: approximate duration of call, who called, date of call, what number was called, and, most importantly, the approximate cost of the call. B.T.E. offers two types of devices, depending on the size of organization and the level of detail required. The CDR device can be attached to either the computerized PBX or an electronic key telephone system.

Computer controlled equipment, whether PBX or EKT system, is flexible in features. Many manufacturers compete on features controlled by "software" residing in the memory device known as the C.P.U. (central processing unit).

The following is a brief description of some hotel features:

4.2 Message Registration

Message registration automatically counts local telephone calls made by a guest. The count is stored in memory and can be accessed by the operator daily or at a check-out for inclusion in the guest's bill.

4.3 Call Accounting Systems

With the deregulation of the United States telecommunications industry, firms are now able to purchase telephone rates at wholesale cost to resell at retail to customers. This application is most prevalent with hotels with over 1,000 dollars in long distance billings/month. A number of companies now offer the equipment to perform this. Canadian companies may still wish to examine call-accounting equipment as a system which monitors and accounts for their telephone network. If regulations change, they would be in a ready profit-centre situation.

III. SECTOR SPECIFIC TRENDS AND APPLICATION

This section is designed to provide more precise information on the application of new technical trends to particular industry sectors of accommodation, transportation, food and travel merchandising services. Readers will find that there is a certain degree of redundancy with the previous section. It was felt that special descriptions would allow interested readers a more telling story. In addition, readers should note that a number of technical service industries specialize in certain sectors such as accommodation or food services. Further information is available through the product information appendix.

1. Accommodation Services

The combined use of computing and telecommunications technologies is having a dramatic affect on the way accommodation services are being operated and sold. The rate of adoption has been increasing in recent years, with greatest interest being shown in telecommunications equipment.

The accommodation sector lends itself to the use of technology because of the large amount of information that has to be processed and communicated. In addition, the perishable room night needs constant monitoring. This has been written to simplify the confusing and frustrating task of trying to develop an overview of the latest trends. This section outlines accommodation information and management systems based on the latest techniques. Figure one shows schematically the different systems to be discussed.

This discussion is broken into four sections: front and back office applications relating to information processing; telecommunication trends; safety and security applications, and energy management.

The differential merits of these trends will be contextuated for accommodation services at appropriate levels.

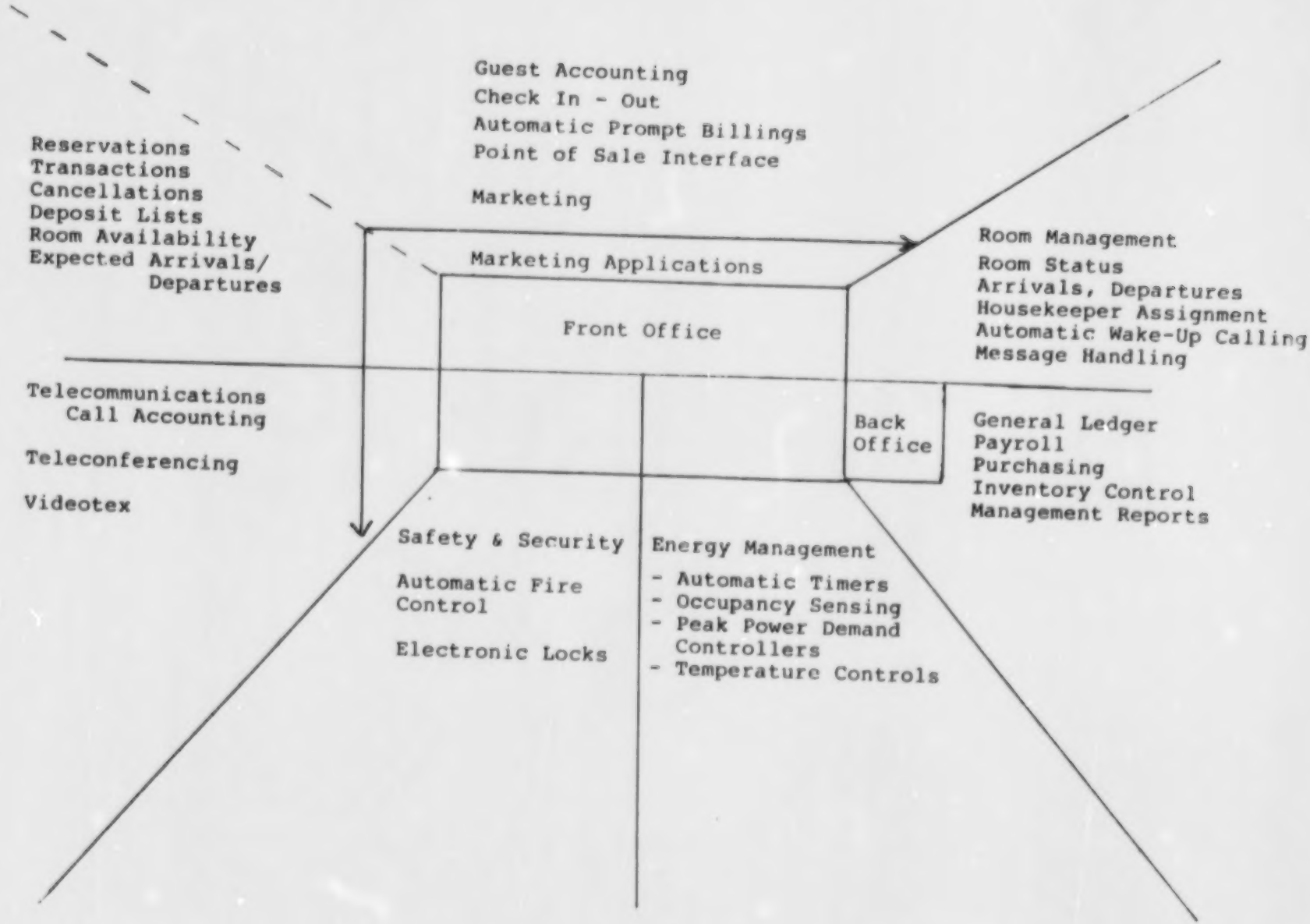
Guest Accounting
Check In - Out
Automatic Prompt Billings
Point of Sale Interface
Marketing
Reservations
Transactions
Cancellations
Deposit Lists
Room Availability
Expected Arrivals/
Departures
Marketing Applications
Front Office
Room Management
Room Status
Arrivals, Departures
Housekeeper Assignment
Automatic Wake-Up Calling
Message Handling
Telecommunications
Call Accounting
Teleconferencing
Videotex
Back
Office
General Ledger
Payroll
Purchasing
Inventory Control
Management Reports
Safety & Security
Automatic Fire
Control
Electronic Locks
Energy Management
- Automatic Timers
- Occupancy Sensing
- Peak Power Demand
Controllers
- Temperature Controls

FIGURE ONE

1. Front Office Applications

The front office can be structured to deal with a guest in three ways - through reservations management, room management and guest accounting.

1.1 Reservations Management

Reservation systems, based on a central computer processor, are now well developed and provide a number of important services to the hotel. Reservation systems can be part of a private firm or inter-firm network such as a toll-free telephone line or a larger Sheraton-style global network. Services may include:

- Reservation transaction files - a listing of all current reservations made for each day.
- Room availability - a listing of rooms available for each day.
- Expected arrivals and departures - a listing of the number and names of guests expected to arrive, stay or depart.
- Deposits - a listing of all deposits by guests.
- Cancellations - a listing of all cancellations by day.
- Group revenue summary - a listing of group bookings broken into rooms, costs revenue, etc.

From this information a number of different forecasts can be made from the systems' stored data base. Examples include room availability, seasonal fluctuations, market areas, room sales, etc.

1.2 Guest Accounting Systems

Tracking individual guest charges throughout a property with point of sale terminals enables firms to perform automatic billing and integrated accounting. These systems are often part and parcel of the reservation system, specializing in accounts.

1.3 Room Management Systems

Designed to monitor and aid the use of each hotel room, room management systems can perform a number of tasks including automatic wake-up calling, housekeeping scheduling, and room status listing. For example, chambermaids can use the telephone system to enter codes to update room status immediately.

The real benefit from reservation and guest accounting services is the marketing use of stored information. The guest history file provides detailed information on the special preferences of return clients, and an overall file allows managers to monitor trends and the significance of special events.

2. Back Office Systems

Duties associated with the "Back Office" are generally textbook business applications of firm function and performance. Applications include inventory control, general ledger, payroll, purchasing and management reports. More effective capital, labour and cash flow management can be achieved through the use of these systems. A number of small and large front and back office systems are currently on the market. Many property management systems are offered on a "Turnkey" basis. In a Turnkey system, a single vendor assumes responsibility for supplying both the equipment and the software, modified for each property. Since the vendor also provides training, monitoring and general support, the hotel's need to hire staff specialists is reduced.

Back office and front office systems can be easily interfaced depending on individual characteristics. It is better if the two are interrelated to limit redundancy. Three systems relating to property management usually monitored through a back office system are energy, safety and security systems.

2.1 Energy Systems

It has been shown that the introduction of energy monitoring systems to limit excess use can reduce energy bills from 10 - 20%. The most common sensing system controls the use of heat, lighting and air conditioning in individual rooms through photoelectric sensing. Guests can override any independent actions.

2.2 Safety and Security Systems

The past record of hotel fires is still fresh in many guests minds. Two related areas have advanced fire safety design. Fire prevention equipment covering smoke and fire detectors are now combined with automated fire control systems. Guest evacuation

systems aid in the orchestrated removal of guests through central annunciators and communication systems. In addition, these systems can notify all authorities automatically.

3. Telecommunication Trends and Applications

The most significant and far reaching of all trends result from changes in communication systems. Both the telephone and broader uses of communication have experienced rapid change. There is an increasing trend towards extension of the telephone system to areas such as energy, safety and security management. Interfaces with the hotel's data processing system are becoming effective, simpler and cheaper. However, major changes exist in different personal uses of the telephone system.

Telephone tracking, switching and billing systems have turned most large United States hotels a profit almost immediately following their introduction. Where the telephone system used to be a liability, it has become an asset. If the CRTC follows the American deregulation of telephone call sales, many properties in Canada will find this an attractive source of revenue.

Electronic call accounting systems link a telephone switchboard to a small processor enabling automatic monitoring and billing of all uses. These systems can also be programmed to automatically make prerecorded wake-up calls.

Rapid changes in communication have made offices totally mobile with information available from most telephone lines. As the electronic executive fully adopts a terminal and keyboard as a memo book, demands will be placed on accommodation facilities for in-room on-line access to various information systems. This is a potential profit centre. Some hotels have established business centres offering a desk, secretarial and communication facilities for business people.

3.1 Teleconferencing

This new mode of communication and meeting techneque is both a potential boon or detractor to hotel use. If the hotel becomes a teleconferencing centre, it could add to increase business.

Holiday Inns, as of June 1983, had equipped over 325 inns with permanent earth stations, forming Hi-Net™, the Holiday Inn video network. Holiday Inns seem the most advanced in this area aiming for "an aggressive expansion of the Hi-Net system".

3.2 Videotex Applications

One solution to the travellers constant quest for information and reassurance (through reservations) is the installation of videotex services in hotel rooms or in a central lobby area. A terminal connected to existing telephone and television equipment can give guests access to travel schedules, news, stock reports, etc. Interactive uses of the system allow guests to make reservations and bill through the hotel accounting system.

The hotel can subscribe to various videotex services and resell them to the guest.

One application central to all accommodation services is representation in various market areas through reservation and information systems. While the common practice for many motels, resorts and campgrounds has been to focus on the rubber tire trade or aim for travellers through booklet listings and pamphlet advertising, all properties should be aware of the benefits of electronic interpersonal reservation systems.

No one management system cuts across all levels of accommodation services. One of the recent trends has been the development of small scale systems designed for small properties.

All managers will find that they can become instantly informed of market intelligence through the adoption of new micro processors. While the original outlay may seem expensive, the savings from more productive marketing strategies cannot be discounted.

DISCUSSION

The British Columbia Motels, Resorts and Trailer Parks Association recognize the need to adapt to new technology. The economy over the past few years has effectively put as much as 20% of the British Columbia motel industry in hard and soft receivership.

In all cases it cannot be attributed only to the economy but in the inability to forecast the changes of booking patterns and market potential. In a letter from Mr. Earl Hansen, the association's managing director, the position of the British Columbia Motels, Resorts and Trailer Parks Association is made clear; "We believe that members of our association are being affected by introduction of electronic technologies of the tourism field. Teleconferencing, computer reservation systems, computer accounting systems, etc., have already affected the lodging industry and the smaller operator is the one who is frequently least able to afford or benefit from the introduction of radically new equipment and techniques. It is however, the small operator who has the greatest need for the incorporation of labour saving approaches in view of the fact that economies of scale available to larger enterprises do not lend themselves to more modest scale operations."

"With some 1200 lodging facilities in the province having 25 or fewer units, the owner/operator of the business is faced with changing his product to better service customers with many limitations not faced by his larger counterparts."

"He does not have a large staff compliment from which he can select his own specialist to seek out ways and means to apply new technology. He must do it himself."

"He is often located away from the population centres and due to the day-to-day demands of his business is unable to get away to the centres to keep track of new developments and explore ways of applying them into his business."

"His operation is very seasonal in most instances, meaning that the revenue generating period is quite brief and that any major new capital cost expenditure has to be looked at very carefully. In spite of these limitations, some enterprising, aggressive lodging operators have already begun to tap the potential of micro computers in their operations. Steps need to be initiated to review the transition from mechanical to computer systems for these operators. There is a need to identify why these

lodging operators were motivated to pioneer the application of computerized equipment, what specific supply problems were encountered along the way, was servicing available and adequate in rural areas, did software programmes meet their needs, are there any training programmes that would have made the transition easier."

"Going beyond the topic of micro computers to other areas of high technology, there seems to be a tremendous information gap between what is happening in the frontier of the market place and the operators themselves scattered all over the province. High technology needn't be as distant as laser based outer space weapons systems to operators in an industry that is behind and in need of catching up. Communication to the lodging community with relevant, intelligible, up-to-date information on technological changes is definitely needed to ensure that the benefits are not confined to the Fortune 500. With 60% of our operations in this province having 25 or fewer units this is not the way to advance our visitor industry. We are pleased the study has been undertaken and welcome the opportunity for input." "Sincerely".

With respect to Mr. Hansen's observations, the most encouraging application is that many lodging operators have already begun the process from mechanical to computer systems. There is little doubt that even the small operator has an opportunity to participate in some form of technological advancement regardless of the size of their operation. Self-motivation is the first step in ensuring participation by this sector or any of the tourism infrastructure.

The British Columbia hotel industry has also been extremely active in identifying technology and its change to their members.

The British Columbia Hotels Association has been actively engaged in documenting technology and its impact on their members. Mr. Lloyd Manuel, the executive vice-president of the association, focussed on communications as one of the more complex parts of the hotels ability to participate in change. Areas such

as telecommunications, call-accounting, reservation systems, and automated accounting procedures form very much their concern.

Although the association recognizes the need to participate in technological change, many of the association members have yet to show signs of participation. The accommodation industry comprises a large number of smaller properties and a small number of sophisticated world wide chain operators. The interest in and adoption of the new technology varies from property to property. In review, the accommodation sector has been less than motivated to take advantage of the new management tools available in the market place.

2. Transportation Services

The use of computerized reservation systems interlinked with various telecommunication devices are essential to the success of most transport services. The computer's ability to sort, reserve and administrate the flow of passengers into a car, bus, plane or ship has significantly reduced a number of problems relating to reservations.

Airlines

The volume and complexity of passenger handling necessitated the pioneering drive of airline reservation systems. Coupled with reservation networks, new systems also perform ticket printing, on-board seat selection, baggage tracing and special request services.

The airline industry has again proved to be on the leading edge in applying the latest technology to aid their service. While technical airline changes go beyond reservation systems to electronic in-flight video games on tray tables, this report focuses on the significant developments in the field of reservations since it affects all industry. An airline without an automated reservation system is now like a cart without a horse.

Only a select number of airlines have developed their own reservation system. The cost and time involved in forming a

reservation system has limited the number of airlines attempting to create one. Most airlines use a system acquired from another airline, choosing to operate their own computer bank or leasing time and access from a system. There are four major airline reservation systems being applied throughout Canada - Air Canada's Reservac, CP Air's Pegasus, American Airline's Sabre, and United Airline's Apollo.

Each airline reservation system is not limited to handling the bookings of a single airline. They are capable of booking with other airlines and tour services such as hotels, car rental and train routings. This interdependency has made the airline reservation terminal central to the success of the travel agent (to be discussed later).

Each system generally consists of a series of CRT's (Cathode Ray or Computer Terminals) interconnected with a central data bank that processes and provides information as stored. From this, airlines, travel agencies, tour operators, and, in the future, personal terminals can access the reservation network to be informed and make bookings.

Airline systems have been designed to perform the reservation function for agents first and independent travellers second. In-home access to reservation systems and the application of videotex to airline scheduling has not kept pace with the airline systems. However, the official airline guides (OAG) has now developed an accessible data bank of its services to all of its subscribers. The advantage of this service lies in the accuracy and up-to-date nature of the information it provides.

DISCUSSION

Although not the airlines official position, the observations of this airline executive are illuminating. "The very basic impact that high technology will have on the tourism industry in general and in British Columbia in particular will be in the area of making information both more accessible and easier to access."

"Currently tourism information is distributed through airlines, travel agents and government information offices. Tourist bureaus, as such, tend to only distribute information concerning ground arrangements and attractions in brochure or flyer form. They rarely can give other than generalized information on pricing and making reservations on the spot. Travel agents, on the other hand, are able to provide the whole range of service starting with how to get there and how much it will cost, through to providing information which can be both destinational and tour information as well as make and confirm reservations on the spot. Airlines have tended to concentrate on the promotion of the destination and the travel involved, being able to give pricing and confirm transportation reservations."

"It is in the area of distribution and information and the ease of access of information that improvements will come in the future and, hopefully, have a very positive impact on tourism. Airline computer programmes are currently being developed with a view to making life easier for the airline reservations agent and the travel agent in terms of accessing information thus reducing the time which is spent in searching for relevant information and releasing that time for the reservations agent and the travel agent to more productively sell the product itself. How is this going to be done? Currently, fares and schedules are shown in an indiscriminate format. That is, if you enquire for a fare between A and B, a whole list of available fares for a very large period of time will appear on the screen. This necessitates the passenger agent interpreting the data to see if any specific fare is available to meet the passenger's requirements, eg; a mid week fare would not apply if the passenger was going to leave on a Saturday or come back on a Sunday; the passenger may not be travelling in a period where a special sale is available; the fare may only be available for a particular class of travel. Further complicating the issue is that once the fare is fixed, one then has to enquire on a separate screen the actual schedule and availability of seats; is there a schedule available on that day between A and B; are there seats available

for sale? Putting all this information together to give the answer to a passenger is currently the passenger agent's job. For this job he has to be highly trained and obviously that training concentrates, because of the methodology of screen display, on the technical aspects of the job."

"The major move which will come about in the near future will be the melding of this information within the computer itself and this will allow for a transaction where the reservations agent can input to the computer, "What is the cheapest fare between A and B on XX date?" The computer would then search and give the cheapest fare and the next cheapest fare including availability on the aircraft to match the query. Furthermore, should a cheaper fare be available two days before or two days after the date enquired for, the response will show this and if there are no seats available or no schedule available on the required date, alternatives along with fares will be displayed."

"Another facility which will inevitably be available will be the dynamic paring of routings. Currently, unless a routing is constructed manually within the computer and inserted and adjusted for schedule changes, an agent has to search for the information. The agent now has to construct this, enquiring for each of the schedules on the required day. In the future this will not be necessary as the required schedule will be placed in the computer, and the computer will search and dynamically pare, through a search procedure, the required schedule."

"All of this technology, of course, will be directly available to all travel agents and all of those on-line to the airline computers so the benefit will be multiplied many times over. The true benefit is not just in making life easier and more accurate but in releasing time for the destination itself to be sold, complete with its attractions, side-trips and excursions. How are these sold?"

"Currently airlines have computer programmes which include hotel

space, car rental and tour packages. While these are quite large at present they are not totally comprehensive. In future, by linking of data banks, this type of information will be fully comprehensive and allow not just for information to be accessed, but also for bookings to be made and inventory adjusted. This could well be the area where the major destinational selling will take place."

"Technology exists today for inserting and accessing both slide and video cassettes which can visually display the product being sold. New CRT sets which will be standard in the near future will allow for this technology and allow for it in four colour at least. It will then be possible to enquire for "Cabin "A" Deck, Princess Line" and the screen will come up with a short 30 second or 1 minute video cassette, complete with audio, showing the cabin and amenities, similar to current commercials on television."

"It is considered that all of this will have a significant impact on promoting tourism".

The point beyond video cassettes is now optical discs. The laser optical disc can bring the most advanced method of retrieval available for full motion video, still frame photography, graphics, text and graphics as well as overlaying fresh text over video.

"The first phase of all this technology will of course be in the airline reservation units and then very rapidly expand to the travel trade. A very short time thereafter it will be available to the public directly and the airline executive believes that this will be either through means of home television, modem links with home computers or airline/agencies stand alone machines, similar to the current banking machines. Technology of the programming will obviously be of the menu type and either be accessed by the keyboard such as exists with current banking machines or screen touching, ie; pointing your finger towards the selection you want and the digital heat activates the response. Access to these machines could well

become similar to banking, through key cards which are distributed widely to potential customers. It could be that common credit cards could be used and these would provide not just the necessary security but also a facility to debit charges. One of the spin-offs of this kind of public access would be the better production of a more detailed record on the statistics of tourism".

The airline executive has effectively highlighted some of the technological developments that are already taking place and will surely be part of the airlines long range plan.

Improving overall airline efficiency will not only rely on the ability of formulating sound decisions in the area of computer controls. Public acceptance of the air transport era may well depend on the availability of improved terrestrial facilities. As air travel becomes faster, ground travel to and from airports will consume a larger proportion of door to door travel time. To the businessman and the tourist, ground delays are a factor that detracts from air travel as a mode of transportation where competitive rail or road vehicles are available. Because the speed of aircraft is increasing, the ratio of time spent to and from the airport at origin and destination is greatly increased.

Airline schedules, people distribution in air terminals, taxiway layout, hub-spoke versus island configurations are all isolated cases yet independent studies have rarely included the complex interrelationships of the air/ground transportation subsystems.

Airline reservation subsystems for example include such complex relationships as population centres, airline schedules and travel demands along with "land packages", hotel accommodation and rent-a-car elements in the computer database. All major airlines share a common infrastructure called the PARS/IPARS/SITA distributed network consisting of tens of thousands of transactions per second at peak hours sent worldwide via an array of phone lines, etc. The network problem is increasing at an alarming rate of speed. Part of the problem is the

increasing complexity of the airline business, it's proliferation of fare structures, particularly internationally. The complexity of the business is not only in the rate calculations but also the pool partnerships by which one airline invites tickets for another generating vast internal traffic from one computer system through the network to the destination airline half way around the globe. System breakdowns are frequent with the current volumes and complexity created by special fares, no frill fares, deregulation, stopover premiums and seasonal rate changes. Those engaged in ACP (Airlines Control Programme), have been addressing the congestion and have embarked on a world task force over the past few years searching for ways of repair and reconciliation of a complex network of computers that in value dwarfs the gross national product of a number of countries.

Although airlines seem to have an edge over the general tourism infrastructure on the utilization of computer technology there is evidence that supports the theory computers in themselves will not solve many of the human elements. Terminal design, passenger dispersal, and the communications network still require enormous human energy to share the burden of decision with computer printouts. Without computers, however, it is clear such a task would not cope with the speed of change affecting airlines and other transportation systems as well.

Rail

Most major railway networks (Via, Amtrak, European Systems) have developed or become linked into reservation systems similar to airline systems. Via Rail has formed a reservations and ticketing system linked to the Air Canada Reservac communications base called Reservia.

A Via Rail spokesperson summarizes as follows:

"Currently, the prime use of high technology takes the form of our reservations and ticketing system (RESERVIA), which is connected to the Air Canada communications network which allows access to air, rail, hotel, car, and tour systems from any CRT

attached to the network. There are over 6,000 terminals attached worldwide, many of which are in travel agencies, which gives great potential to the services and offerings contained in the various systems."

"As for the future, Via is keeping a careful watch on the travel industry, with specific attention to airlines and other railroad companies and the new technologies being used. It is highly likely that most travel agencies will have their own micro computers very shortly, which should be capable of dialing up any reservation or other system that allows access. CP Air is currently promoting micro computer packages to travel agencies. We are also evaluating self-ticketing machines currently being used by European railroads and North American airlines."

"As an overall vision to the travel industry, we perceive that advancements in telecommunications and micro computers will greatly affect the ability of the industry to offer more services."

"However, the services in the forefront will be those held on mainframe computers that are accessible through common carrier networks from the travel agency micro computer. It could also happen that the increase in home computers may influence these service offerings to be accessed as a "travel service" at home where the public can browse through industry offerings, and make their own reservations."

"The technology to do all this is with us today, but it may be 5 to 10 years before the use is commonplace".

The Amtrak system is independent of any airline system. As a result agents still need to call Amtrak on demand.

Car Rental

In efforts to gain maximum use of their fleet, major car rental companies have had centralized reservation and car tracking systems for a number of years. The trend is for all major reservation offices (including travel agents) to be linked to the company's central data bank. Many car rental companies

have been linked with airline systems to facilitate the travel agents access to more services. In addition, links between hotel and car rental companies such as Hertz and Holiday Inn's reservation system are also being undertaken.

Avis has introduced a computerized rapid rental service that will enable booked clients to select a vehicle and complete a rental agreement in less than a minute. They will use a computer operated by their credit card, without having to appear at the Avis rental counter. The customer can then proceed to the Avis bus and be dropped off at the car, where a rental agreement will be waiting. The client then shows the agreement and a drivers licence at the gate on his way out.

Other Transportation Services

Similar to their sister services, bus, ship and taxi services are all experiencing a period of change. Advances Reservation Systems follow that of other transport services.

In some countries, taxis have onboard computers. This benefits a consumer's requirements by ensuring efficient placement of taxis to places of need.

3. Travel Merchandisers

In no other sector has the effects of recent technical changes been as dramatic as it has with travel merchandisers - travel agents and tour operators. While the jet travel industry practically created the tour operator, new multi-access reservation systems are posed as a potential threat or boon to travel agents. The jury is still out on the future role of travel agents. Many agents felt they were not in control of their own destiny. Some, however, show every sign of adapting to change. They will survive.

The new role of travel agents will have to include information, communication and reservation services. As reservation systems become more accessible to the common public, the travel agents domain will lie in travel information and counselling.

The travel agency will be introducing three changing areas of application to keep the firm competitive: reservation systems, information systems and back office management systems can form three pillars of an agency.

1.1 Travel Agency Reservation Systems

Central to the role of travel agencies is the dissemination of information in aid to make reservations. The only terminal linked reservation systems for travel agents in Canada are airlined based. The four predominant airline systems are Air Canada's Reservac, CP Air's Pegasus, American Airline's Sabre, and United Airline's Apollo system.

1.2 Travel Agency Information Systems

With the rapid change in self service technologies and diverse reservation systems, the role of the travel merchandiser will have to focus more on expert opinion and source of information and less on ticketing if ticketing sales are to continue. As a source of information, travel agents will find a steady flow of customers.

A number of new and interesting services now facilitate the travel agents' job as an information provider. The use of electronic visual representation of the various services for sale distills some of the travel mystery. A travel agency can be transformed into a visual travel show for travellers by displaying all relevant information on just about any region. All that is needed is a videodisc machine, a telecommunications connection and, a central processor to become a library of information. A number of firms now offer the more primitive "electronic brochures of the future" with video cassetttes on various activities, or pictures and text giving complete details of all packages available broken down by gateway, destination, tour operator and hotel, etc. Still, printed brochures will survive in that it is tangible evidence a holiday destination exists.

1.3 Travel Agency Back Office Systems

Numerous packages exist for general accounting and ledger needs

of any small firm. A series of back office packages have been developed by the airline systems in efforts to sell their product.

Independent companies such as Global Travel Computer Holdings produce accounting and management reports for agencies looking for managerial advice and detail.

Both airline and consulting systems like Global have assisted many agencies in maintaining individual control over their accounting procedures using in-house systems run on software developed specifically for travel agents. Over five companies now offer independent programmes for a small computer set-up.

For those not wishing to invest in their own system, travel agencies can supply data to Global and receive a management report. This removes some of the agency paper burden serving as a viable alternative.

Although automation is slow to take hold in British Columbia, leaders of industry are addressing the changes taking place. The airline industry, in particular, has been working with new technology for some time. The British Columbia chapter of the Alliance of Canadian Travel Associations has been making representation to their national committee on technology and change as it effect the Canadian travel agent.

The automation committee for the Alliance of Canadian Travel Associations (ACTA) consists of representatives from each provincial association, tour operators, travel service suppliers and, as an additional resource under their auspices, past chairmen of the automation committee and other members with specialized knowledge.

The broad mission of the Automation Committee has been as follows: "A) To secure a compatible climate for the provision of automated reservation/processing functions for agents and suppliers in Canada, B) To maintain awareness of technological developments, C) Research the potential benefits and impact on our members and to seek cost benefits for agents." The board further wishes that the automation committee: "A) Maintain an alertness to

industry affairs that impinge on automation matters and act, or recommend action as required, B) Continue research so that recommendations can be made in equipment/lease options and independent management information systems, C) Promote liaison with other suppliers of agency automation programmes, and for all systems should show vigilance to ensure that display modes and facilities are equitable to Canadian suppliers and provide effective retention of agents brokerage role. There should be an awareness of developments world wide with respect to the automation applications available".

Travel agents have indeed a handle on technology which affects their day-to-day operation. However, travel agents have not engaged in automation other than that necessary to provide for an in-office terminal that offers reservation information and an automatic ticket printer. Beyond that stage most travel agencies are still operating as they have always done in the past. The Alliance of Canadian Travel Associations has been working for some time to bring their members abreast of the changes technology brings. In the 1983 ACTA national survey, all agencies used an airline reservation system with 11% having two different systems. In addition, 69% used ticket printers and 39% also had general printers. 35% used a back office accounting programme. 70% of ACTA data agencies are fully automated and account for 80 to 85% of total booking revenue in Canada.

Of the four companies attempting to sell airline reservation systems, Air Canada's Reservac system is the most widely distributed with over 3,119 terminals in 2,246 agencies. CP Air has just begun its major push with an expected 215 agencies by November 1984 increasing at 50 per month thereafter. United Airline's Apollo system is testing four systems on the west coast and aims to further develop their market by 15 per quarter in 1985. American Airline Apollo representatives were unavailable in Canada for comment.

Airlines have been one of the first of the tourism infrastructure

to adjust and bring operations, marketing and service standards into the realm of available technology. There is no question that this is being brought about by their need to compete in the world market place. Airlines have usually been identified as being able to foot the bill of the necessary capital expenditure. Airlines have identified their own future as dictated by the equipment of their trade and those that service or act as agents for them. These servicing agents require the necessary extensions of airline technology investment to operate efficiently and for the most part profitably.

4. Tour Operators

The tour operator's ability to put together an innovative package of travel ideas is becoming easier. Selling the package is the hidden challenge. In addition, sales and distribution of the product has become less restricted, thereby loosening operator dependence on such other sources as travel agents and ground operators.

Thompson Holidays form a classic example of a modernized tour operation. Since 1976, Thompson has spent over 2 million pounds developing "TOP" (Thompson Open-Line Programme) which allows travel agents on-line access to "TRACS" (Thompson's Reservations and Administrative Control System), a computerized holiday reservations system which began in 1976. Thompson has chosen to fully integrate videotex as a tool to aid in selling their product. This system provides travel agents with a reservation and information tool directly linking travel agents to Thompson's central computer.

Travel agents are linked to "TOP" through a telephone line giving them access to a regional Thompson centre. The centre acts as a central processor providing the information and bookings required through videotex communication. Thompson has signed agreements with over 4500 travel agents in the U.K. for access. As a result, these agents can directly book and obtain information on all Thompson holidays without worrying about outdated or wrong information.

> The point of sale is now remote from Thompson, but at the same time the agent is more intimately linked to Thompson than even before and the potential for the eventual development of the system into on-the-spot ticketing, when printer technology allows, and the integration of video to improve presentation to the clients, is, to say the least, exciting.
>
> C. Palmer, "Booking Package Holidays", Data Processing, December, 1982, 24 (10), pp. 24 - 26.

Tour operators are becoming less centralized in their operations enabling them to operate all portions of a tour and sell all aspects of it. The ability to find and communicate information enables tour operators to package and operate a tour in any area of the globe. The ability to disseminate information instantly through a series of telecommunication lines allows foreign tour operators to sell direct through their own offices. It is evident that tour operators are becoming more global and integrated in their operations. This is supported by the rapid rise and agglomeration of some of the world's largest tour operating companies using these latest techniques.

5. Food Services

A number of specialized functions have been developed to aid in the operation of food services.

It is best to discuss food operations in two separate categories - table service and fast food. Although not entirely distinct, there are major technical differences in operation. The rise of sophisticated point-of-sale terminals which process management and inventory information have fueled the rise of fast food chains as well as aiding table service operations.

While other tourism sectors often sell their service in advance, the sale and consumption of food services is almost immediate. As a result, advances in point-of-sale devices have greatly facilitated food service operation.

Point of sale terminals now have specific keys for select menu items that enable a data bank of sales information to be stored for inventory and sales purposes.

Terminals also exist that provide well organized bills breaking down items and costs by category.

Fast food chains benefit from a common hardware and software application that is easily taught and distributed to keep track of a common, proven product. Larger fast food restaurants may also choose to develop a computerized ordering system where orders can be relayed throughout the firm to specific work stations.

Menu planning software enables firms to cost out various recipes by inputting ingredients. Each menu item can be costed by volume for product, labour and operational costs.

Increasingly sophisticated point-of-sale terminals enable new applications of inventory and cost control. If the kitchen is viewed as a manufacturing plant, a series of inputs and outputs can easily be traced through the restaurants operation. It is possible to isolate and identify problem areas through trak monitoring.

At present, there are relatively few restaurants using computers. However, with recent developments in point-of-sale systems and computing interfaces at reduced costs, it is evident that applications will increase. Trends begun in the fast food industry are slowly being applied to slower paced table service restaurants.

In this highly service oriented business, food service operations will need to be aware of customer sensitivities to new applications and how they affect the atmosphere of the restaurant.

CHANGING INDUSTRY RELATIONSHIPS

The application of computing and telecommunications technologies to individual tourism businesses will inevitably alter the organizational structure of the travel industry as a whole. This is largely because of the high degree of interdependency that exists within the travel sector. The impact can best be understood, if examined as follows:

1. Intra-Firm Relationships,
2. Inter-Firm Relationships,
3. Impact on Sector Associations,
4. Relationships between Government and the Private Sector,
5. Employment Opportunities,
6. The Role of the Business Community.

1. Intra-Firm Relationships

New technical applications will affect three areas of a company's operation: operations and cost control, marketing, and product delivery.

1.1 Operations and Cost Control

The application of computers general tasks such as accounting, payroll and word processing has already done much to increase the efficiency of many travel-related firms. The introduction of micro computers and relatively inexpensive spreadsheet programmes will be of enormous benefit to those innovative entrepreneurs who decide to "look before they leap." Operational costs can be monitored carefully and remedial action taken in time to prevent financial disaster.

1.2 Marketing

Marketing strategies can be made more effective through the use of information stored on client history files, access to larger data banks, and more effective monitoring of travel patterns. It is evident that the precision of marketing strategies will become more important as competition increases. Sheraton hotels, for example, believe that 80% of its "technology" investment is to aid marketing.

As consumers become able to acquire vast amounts of information electronically they will be able to discriminate more effectively between products and services. Without representation on electronic information directories, companies will quickly lose market share.

Changing patterns of conducting business through various forms of teleconferencing and telephone communication will create a demand for some type of facility while decreasing demands of others.

1.3 Product Delivery

Perhaps the most significant change will surround the method of product delivery. Travellers are likely to alter their purchasing patterns through self-service information, reservation and ticketing systems to speed their travel. It is fairly clear that only a certain portion of the travelling public will be immediately affected by these trends.

2. Inter-Firm Relationships

The most dramatic change over the next decade will be the increased interdependency of tour service firms. Increased communication and information systems now enable all firms to be easily interlinked.

The growth of multi-access information and reservation systems will force a high degree of cooperation between firms and the resolution of such sensitive issues as firm representation, bias and access. For example, Global Travel Computer Systems attempt to develop a multi-access reservations and ticketing system for Canadian travel agents failed because Air Canada refused to provide the necessary tie into its own reservation system, Reservac.

3. Impact on Sector Associations

Sector associations will find their membership to be divided into two camps: those companies that have the commitment and resources to adopt new technologies and gain competitive

advantages and those who prefer to maintain the operational status quo.

A key issue, and one that will stimulate much debate in coming months, is the extent to which sector associations support public reservation systems.

It seems that the large and franchised firms would desire to retain their market share through their private systems. However, smaller and independent operators will be lobbying for cooperative systems that provide more equal access.

In a sense, integrated firms have their own associated body which enables them their own effective lobby and research capabilities. Sector associations have traditionally been a general research and lobbying organization. Recent technical trends have spured recent demands to investigate possibilities of cooperative networks. It is clear that sector associations will have to undertake more research to define their role in a changing environment.

4. Relationships Between Government and the Private Sector

Government has traditionally got involved in tourism in two areas: marketing and helping firms adjust to technical and social change.

In aiding market access through advertising and representation abroad, the method of reaching various markets could change slightly. For example, the establishment of information and reservation systems in foreign, even interprovincial locations would facilitate marketing practices.

In aiding adjustment strategies, firms will be under short term financial pressure in adopting new technical equipment. In addition, firm employees will need retraining or replacement in many instances.

5. Employment Opportunities

The employers council reports tourism to be a shining light in the province of British Columbia. Tourism is relatively

labour intensive and many are looking to this industry as a major source of employment. There are already 70,000 people employed, and likely 100,000 including support services. But mention the politically contentious issues surrounding high tech - job loss and employee retraining - and it is apparent management, labour and government are still groping for solutions. There is no doubt jobs will be lost in tourism to technology. There is no doubt that cooperation of the highest order will be necessary be employees, management, owners, and government in addressing the inevitable changes technology will force on the tourism industry.

With the shifts taking place within the provincial economy pressuring the work force to enter tourism, questions arise as to the immediate ability of the industry to absorb new entrants, and/or train potential entrants, and upgrade the current work force to ensure a competent level of expertise. There does not seem to be the necessary planning in place to compensate for this perceived problem.

Training and retraining will form the basic elements of job retention and job upgrading. An immediate recommendation is an early call to formulate an action plan dealing with the question of training and retraining the tourism labour force.

Information processing capabilities have been exploded by increased computer power and more adaptable programmes. The ease of processing has not only altered firm work structure but also the decision making process. Middle management, a past champion of information communication, is becoming increasingly redundant with quick, effective management reports automatically processed through capable software.

In addition, an arena of frustration exists with newer players to the tourism industry who find their path of development blocked by middle management not anxious to change the manner of operation. This symptom prevails usually from a belief held by middle management that if everyone else in a company has equal access to the same information, their jobs might be in

jeopardy. In a rapidly changing world, experience is no longer a guarantee of job security.

The contribution made by the private sector to the training and upgrading of its current work force is virtually nonexistent. This phenomena does not escape the notice of those working in parallel with the industry. In fact, the industry's inability to foster its own future growth out of its own resources is one reason why the industry's plea for recognition has been ignored for so long. This state of affairs reflects the fact that the industry still does not consider itself a single body.

The president of one of the world's most successful high technology companies says he had no regrets if his firm's inventions contributed to unemployment.

His suggestion was that "everyone had better come aboard the computer express, or be left behind. Companies must be competitive. If you are not you will certainly lose even more jobs than those which become obsolete with the advent of automation. Our company can have a clear conscience about job displacement because we know our products are making firms more competitive and that makes for a healthy economy."

"We saw it in the radio plants, the television plants, the auto industry and now in the steel industry. Progress does not stand still and out products are helping Canadian firms stay competitive".

Tourism and its infrastructure cannot remain isolated to the changes around it. Tourists are people and there is no doubt the lives of tourists are being affected dramatically by technological change. Such change will be measured in the new attitudes developed with respect to personal travel. Technology would seem to hold a key both for the tourist and for those that serve the tourist.

6. The Role of the Business Community

If tourism firms are to keep up with the times, they will need support from the business community. An understanding between

tour service firms and the supporting business community of financial institutions and equipment suppliers will have to be reached.

It is recognized among financial institutions that tour service firms are not among the most sophisticated business analysts. For firms to expand, they must rationalize their existance.

The B.C. Innovations Office, engaged in the process of bringing innovative entrepreneurs and financiers together, suggested that the issue of tourism, its infrastructure, and possible applications has not been addressed in British Columbia. In over 5,500 queries in the past year no more than one or two have been that connected with tourism. Tourism has not been seen as a target market for new manufacturers, entrepreneurs, inventors, academics and those engaged in the job of making things happen.

Tourism is commonly addressed as an easy entry industry. Educational skills, training, and other personal improvement techniques are not prevalent. While within the Fortune 500 Players there are well trained, well educated personnel, most areas of the tourism infrastructure are made up of lesser skilled participants. Owners of these small enterprises show little desire to upgrade personal skills and there is a tendency to operate as one always has.

The tourism industry has numerous friends that feel it is the industry's place to make necessary changes needed to ensure prosperity for everyone concerned. Frustration stems predominantly from a lack of industries desire to change. However, much of the industry is indeed changing and in a very positive manner. Leadership both in the private sector and from government will enhance and quicken the pace of the tourism industry's participation in change.

One overriding comment expressed both by suppliers and all levels of government is a suggestion that the tourism sector does not respond to their potential. An annual gross revenue in the vicinity of 2 billion dollars, has not been realistically

reinvested. The tourism industry is one of the most lackluster participants in its own future.

Equipment suppliers to the accommodation and foods services industry have identified another obstacle to the adoption of new technology. In Toronto, for example, there are few leasing companies that will take a lease from a hospitality associated enterprize. In Toronto alone one company suggested they had to cancel over 3 million dollars in orders during the past year. They suggested if leasing and banking institutions will not gamble on the financing necessary for the accommodation and food service industry to obtain equipment then why should the equipment supplier. This is as much the industry's problem as it is the financial institutions. The financial institutions work on the prescribed methods of loan granting. Those in the tourism industry must evaluate what it is they are doing, and what it is they must do, to show evidence they are indeed participating in business. For suppliers it is evident that when it comes to financing there is in fact a major hurdle. It is hoped that meetings between both the tourism industry, its infrastructure and the financial institutions can pave the way for a more amiable working relationship. Some suppliers have suggested that support must come from government or it is unlikely industry will be able to obtain the necessary financing to upgrade their respective business operations.

The author respectively identifies a more acceptable formula, that being long term industry incentives rather than makeshift handouts.

APPENDIX 1

PRODUCT & SUPPLIERS

ABC Cash Register Co. Ltd.
527 East Broadway,
Vancouver, B.C.
V5T 1X4
(604) 876-7161

ABC Cash Register has a full line of interactive Kingtron Cash Registers with remote printers for bar, kitchen, and service areas. Applications such as front desk, cable communication, consolidation reporting, and linking to a low cost micro computer via a modem over telephone lines are also available. The system can be designed to fit the operator's specific needs.

Agency Management Services, Inc.
1902 Leland Drive, Suite 4,
Marietta (Atlanta), Georgia 30067
(404) 955-2392

TOM™ - Travel Office Management computer system is an accounting system with additional features available. Commission tracking, aged accounts receivable, daily activity and summary report and group tour programme - are a few of the features of TOM. Additional software that is available includes word processing, data base management reports and personalized form letter writing and TOM/Plus interface with the major reservations systems.

American Airlines
P.O. Box 61616,
MD 5J06 DFW Airport, Texas 75261

American Airlines Agency Data System interfaces with the Sabre system and other major airline reservation systems. The Agency Data system allows for automated production of ATC tickets and itinerary/invoices, management control through informative management reports and travel agency accounting.

American Business Computers
3200 Gilchrist Road,
Mogadore, Ohio 44260
(216) 733-2841

Canadian Distributor:

Western Cash Register Inc.
338 West 6th Avenue,
Vancouver, B.C.
V3Y 1K9
(604) 879-4185

A beverage control system which mixes, pours, prices,

taxes and records. The ABC system also prints guest checks and management reports. The Electronic Cash Register beverage menu can be adjusted to customer specifications. Dispenses up to 46 different beverages components. Currently developing a point of sale system to control food operations in a restaurant.

Applied Technology Ventures, Inc.
2921 South Daimier,
Santa Ana, CA 92705
(714) 546-0119

ATV offers a wide variety of hospitality systems that have a full range of computerized functions. Food and beverage control for hotels, regional management and full corporate systems are available. International service and support.

Aptech Computer Systems, Inc.
135 Delta Drive,
Pittsburgh, PA 15238
(412) 782-5550

Aptech provides front and back office systems for large hotels and multiple properties. The financial control system provides financial and accounting controls for hotels from construction to operation.

Archer Computer Management Inc.
Suite 200, 2901 Bayview Avenue,
Willowdale, Ontario
M2K 1E6
(416) 225-6122

A centralized hotel reservations system designed for use on Wang computers. Has all the functions necessary to make reservations plus ability to provide information on hotel features and city information.

AT&T International
Mt. Kemble Avenue - Route 202,
P.O. Box 700,
Basking Ridge, NJ 07920
(201) 953-7000

AT&T has recently been granted permission to sell its products and services in Canada. AT&T offers a variety of advanced communication systems including videotex, teleconferencing, electronic blackboard and call information systems. A number of call information systems are specifically designed for the lodging industry.

Basic Telecommunication Corporation
4414 East Harmony Road,
Fort Collins, Co 80525
(303) 226-4688

The Data Voice System™ is designed to automate business communications between people and machines. The stand-alone system allows for electronic text and voice messaging, retrieval of information from distant computers, composition of correspondence and reports. It also has capabilities to serve as an appointment reminder and automatic phone dialer.

Bowmont Electronic Programmers
506 Columbia Street,
Kamloops, B.C.
V2C 2V1
(604) 374-4451

This computerized system was designed specifically for smaller motels. Allows for 365 day reservation tracking, daily reconciliation of cash, accounts payable; cheque ledger, income and expense sheets and a variety of management reports.

Cobrasoft
13666 S. Hawthorne Boulevard, Suite 5,
Hawthorne, CA 90250
(213) 644-1135

The Agency Management System (AGCYMGT™) is a back office accounting system. A menu driven system with error trapping routines, the system can provide a number of accounting reports such as cash disbursements summary, hotel/car commissions due, and commercial travel report. Does not interface with reservations systems.

Compudat
5601-77 Center Drive, Suite 190,
Charlotte, North Carolina 28210
(704) 525-3806

TRIPS (Travel Information Processing Solutions) consists of a tour module and travel agency module. The travel agency module is a basic travel agency accounting system. The tour module is designed for the wholesale tour business to track costs and profits. Records of disbursements, miscellaneous journal entries and an air schedule maintenance programme are among the features of this system.

Computer Technology Group
Telemedia, Inc.
310 S. Michigan Avenue,
Chicago, IL 60604

A video based training system which combines video and

text material with hands-on exercises to produce educational training programmes.

Computer Video Systems Inc.
3678 West 2150 South, Unit 2,
Salt Lake City, Utah 84120
(801) 974-5380

Computer Video Systems manufactures equipment which allows the hotel to provide information for the guest on local activities, guest services, weather, restaurant menus, etc. The guest accesses this information through the television in each room.

Comtrex Systems Corporation
109 Gaither Drive,
Mt. Laurel, N.J. 08054
(609) 778-0090

Comtrex provides several restaurant management systems. The Systems tracks labour time and attendance, explodes menu for food costs on a portion control basis and tracks server productivity. A number of management reports are available for inventory control and labour analysis.

Control Transaction Corporation
14 Industrial Road,
Fairfield, New Jersey 07006
(201) 575-9100

The Provider is a computerized restaurant system that has been developed over the last five years. A food and beverage point of sales system that is available for all sizes of restaurants. Generates management reports, allows for on-line management monitoring of any transactions, remote printers for both kitchen and bar.

CorKey Control Systems Inc.
8622 Bellanca Avenue,
Los Angeles, CA 90045
(213) 670-5545

The CorKey™ lock uses reusable magnetized metal or plastic cards. The CorKey™ system allows for quick recoding of the cards. Due to the extensive master keying capability of the CorKey™ system, large facilities can be keyed under one master.

Crowder Communications Ltd.
4312 Norfolk Street,
Burnaby, B.C.
V5G 4J9
(604) 437-4433

Provide installation and maintenance services in the satellite broadcast and general communications field.

The Company offers a complete range of products plus technical support services.

CTS Computer Systems (Vancouver) Inc.
4459 Canada Way,
Burnaby, British Columbia
V5G 1J3
(604) 430-4061

The Qantel® system distributed by CTS features the Hotel and Leisure (HAL)™ package. HAL™ is available as a front office and back office system which are available separately or combined. Features vary from reservations to housekeeping and room maintenance. Additional packages available include: Telephone Management, Energy Management and Point of Service Cash Register interface.

Cutler-Williams Incorporated
2655 Villa Creek Drive, Suite 205,
Dallas, TX 75234
(214) 243-3421

The Back Office Support System (BOSS) is an accounting system for hotels designed by Cutler-Williams for use on the IBM 34, 36, and 38. BOSS provides detailed accounting reports including general and statistical ledger.

Datapoint Canada Inc.
2305 Hemlock Street,
Vancouver, B.C.
V6H 2V1
(604) 736-2811

Datapoint® has a number of communication systems. Automatic Call Distributor provides management control and increased productivity for high traffic inbound call handling. Processes, stores and routes information on incoming calls.

The Call Accounting System for Hotels (CASH) by Datapoint® provides cost assignment of local and long distance calls to hotel guest rooms. Additional features include room status information which allows the front desk personnel to know what rooms are ready for occupancy. Provides reports for accurate billing.

202 Data Systems
1275 Drummer Lane,
Wayne, PA 19087
(212) 486-0700

The ADAM (Automated Data and Accounting Management) system was designed by ASTA for the travel agent. The software package combines the ASTA accounting system with an information management system. Automates the basic accounting procedures, cheque writing, employee analysis,

sales/management reports and itinerary scheduling. Client information can be maintained and mailing lists compiled.

DBA Communication Systems Inc.
339 West 2nd Street,
North Vancouver, B.C.
V7M 1E2
(604) 985-9521

DBA Communication System Inc., is the Canadian Distributor for the TMS (Telephone Management Systems) product line of station message detail recorders. The TMS SMDR systems are easy-to-use, one-site, micro processor, telephone accounting and information management systems that produce a wide range of reports for cost control, allocation, network management and client chargeback.

Eastern Airlines Incorporated
International Airport
Miami, Florida 33148
(305) 873-2211

The Systemone Direct Access Programme allows direct access to participating airlines reservation systems. Information and confirmations available for hotels/cars and air taxi. Accounting option available. The system is currently not available in B.C.

EECO Computer, Inc.
1601 E. Chestnut Avenue,
P.O. Box 659,
Santa Ana, CA 92702-0659
(714) 835-6000

ECI has been involved with lodging management systems since the 1960's. They currently offer property management systems for both large and small properties that are capable of performing front and back office procedures.

Elkem Ving Inc.
P.O. Box 36048,
6200 Denton Drive,
Dallas, Texas 75235
(214) 358-4631

The VingCard® is a computerized punched plastic card that acts as a key. Four billion different key card combinations are available. Rekeying time and cost is greatly reduced when compared with that of a traditional keying system.

Eprom Educational Program Manufacturers Inc.
#9 - 1214 West 7th Avenue,
Vancouver, B.C.
V6H 1B6

The Cati 700 II Micro Computer allows custom produced

interactive video programmes which are available in a video tape and/or video disc format. Compatible with many of the popular micro computers.

Farwest Systems Corp.
125 East 4th Avenue,
Vancouver, B.C.
V5T 1G4
(604) 873-8311

Distributor for: Data Terminal Systems, New Systems Inc. - a hotel system.

Data Terminal's restaurant/pub system provides inventory tracking, food costing, time and attendance, CHECK TRAK™, outstanding cheque report and many others. Has the ability to transmit instructions to kitchen, bar and preparation areas. The A La Carte System allows for interface between the DTS cash register and the "Food & Liquor Manager" software. This allows for waiter analysis, sales analysis, sales history, trend projection, inventory and accounting functions.

Flightime Television
2261 Bellevue Avenue,
Vancouver, B.C.
V7V 1C5
(604) 669-4676

Flightime television produces programmes featuring 30 second commercial exposures of various products. The programmes are currently shown on passenger airlines and in airport terminals.

Galaxy Systems Inc.
One Woodlawn Green, Suite 116,
Charlotte, NC 28210
(704) 523-5010

A versatile accounting system for travel agencies. Included in the basic system are a complete ticketing and invoicing system, general ledger system, mailing list programme and word processing. Available as options are: interface with reservations system and a report generator. Currently under development are a group programme system and payroll processing/cheque writing programme.

Galler Hospitality Systems, Inc.
520 South 52nd Street, Suite 209,
Tempe, Arizona 85281
(602) 968-1988

A division of Galler Automation Industries, Inc. Offers a management control system which features a fully integrated back office system, front office system and central reservations. A number of options including

travel agency accounting, guest history and word processing are available.

Gary, Stosch, Walls and Company
700 East Main Building, Suite 1700,
Richmond, Virginia 23219
(804) 649-0351

HIMS™ - the Hospitality Information Management System is designed for use in the restaurant industry as a back office system. Amongst its capabilities are: inventory control, commissary production, recipe explosion, gross profit analysis, sales analysis, inventory adjustment and month end summary.

Guestron Hotel Management Systems

B.C. Distributor:

Pacific Coast Systems
1620 West 8th Avenue,
Vancouver, B.C.
V6J 1V4
(604) 736-8651

User friendly system offering: reservations, front desk systems, housekeeping, telephone, group function control, building maintenance, night audit, back office accounting.

Hagen Systems Inc.
8100 Wayzata Boulevard,
Minneapolis, MN 55426
(612) 546-3351

Accounting/bookkeeping, sales analysis, client reporting, financial reporting are the main features of the Mark Ten Travel Management System. Options available include word processing, payroll, bulk ticket processing and packaged tour systems.

Hepting & Associates Ltd.
#308 - 4211 Kingsway,
Burnaby, B.C.
V5H 1Z6

Hepting & Associates have designed a travel agency software system for use on the Basic/Four Microcomputer®. There are six distinct modules: itinerary processing, invoicing/ticketing, accounts receivable, accounts payable, general ledger and file handling. A variety of sales reports are produced for use by management.

Holliday Systems Inc.
11554 Santa Monica Boulevard,
Los Angeles, CA 90025
(213) 208-6506

Holliday Systems Inc. provides software packages for

use on the Apple computer. Package features include: accounting function based on the ASTA system, ticket printer, ATC report, group control, bank reconcilliation and cheque log and sales report. Does not supply software.

Hospitality Data Systems
1171 Harvey Avenue,
Kelowna, B.C.
V1Y 6E8
(604) 860-1220

The MAX computerized system integrates the control of all functions of hotel operations. Features: reservations, front desk packages, accounting, food and beverage and sub-systems with various management functions. HDS also has an energy management system and interfaces with Datapoint's call accounting system for hotels.

Hotel Data Systems, Inc.
83 Wall Street,
P.O. Box 267,
Norwalk, CT 06852
(203) 866-6669

An integrated front and back office system for hotels that is designed to run on Wang computers. This system is applicable to both individual hotels and multi-properties.

Hotel Information Systems
400 Ellinwood Way, Suite 160
Pleasant Hill, CA 94523
(415) 827-1212

Hotel Information Systems has developed a comprehensive front and back office system for hotels which has the ability to interface with many call accounting and other systems. Also available is software for either front or back office that is designed for the small hotel.

IHS Hospitality Systems Ltd.
5170A Timberlea Boulevard,
Mississauga, Ontario
L4W 2S5
(416) 624-0334

Market three systems for the hotel industry

Lodgistix PC-30 - available in Canada at the end of this year. Designed similar to the mainline Lodgistix system with the small hotel/motel in mind. (0 to 200 rooms)

Guestmaster - Canadian designed for hotels up to 150 rooms. A turnkey system featuring: Reservations and Registration, Cashiering and housekeeping, Night Audit, Management Information. Uses IBM micro computer.

Lodgistix: For use in larger hotels. Has a choice of

either front or back office systems or both. Provides personnel training and 24 hour support.

Info Globe
444 Front Street West,
Toronto, Ontario
M5V 2S9
(416) 585-5250

Info Globe is an online information data bank which allows access to a number of information sources. The Globe and Mail Online allows access to Globe and Mail articles over the past six years. Marketscan lists information from the New York Stock Exchange and the major exchanges across Canada. Also available are Textline and Dow Jones News/Retrieval providing information from business publications.

Infotex Services
CNCP Telecommunications
3300 Bloor Street West,
Suite 1200, West Tower,
Toronto, Ontario
M8X 2W9

Infotex™ allows for communication between word processors, electronic mailboxes, electronic files, computer assisted decision making and retrieval from distant databanks.

Inntech
10 Fiske Place,
Mt. Vernon, NY 10550
(914) 699-8100

Inntech has a number of product available for communication, energy management, in-room security, in-room entertainment and property management. Systems are available for small hotels to the very large.

Interstate Computing and Software Corp.
1574 Old York Road,
P.O. Box 83,
Abington, PA 19001
(215) 667-7309

DMS-travelguide® is a data base management system developed by Interstate Computing. Has capabilities to support large as well as small agencies. Among the services available are: retail and group reservations, ticketing and vouchering, basic office accounting from invoice to general ledger and management reports.

Knox Data
7100 Hayvenhurst Avenue,
Van Nuys, CA 91406
(213) 781-4477

The Innkeeper's Management System provides front and

back office capabilities for hotels and motels. The IMS interfaces to most point of sale systems for revenue collection and guest folio posting. A telephone system as an integrated module or interfaced system is also available.

MAI Basic® Four Hotel® Computer System
4370 Dominion Street,
Burnaby, B.C.
V5G 4L7

MAI® has a comprehensive computerized hotel system with 24 hour support service. Amongst the functions performed are: Telephone call accounting, front desk operations, food and beverage control, sales management, reservations and accounting.

Media Videotex Corp.
Suite 400, Georgia Place,
1176 West Georgia Street,
Vancouver, B.C.
V6E 4A2
(604) 669-4011

Media has developed a multiuser IBM-XT based visual information system. The system allows multiple users to view NAPLPS (North American Presentation Level Protocal, Syntax) videotex frames and video disc frames and sequences, as well as superimposing text and graphics over full motion and still use. Store on laser discs.

Micro-Business Interface
2532 E. Villa Street,
Pasadena, CA 91107
(213) 681-3541

A computerized programme for travel agencies that features an accounting system based on the recommended ASTA format. A selective mailing and group movement programme is also available.

Micros Systems, Inc.
6801 Kenilworth Avenue,
Berkshire Building,
Riverdale, Maryland 20840
(301) 277-7707

B.C. Distributor:

Western Cash Register, Inc.
338 West 6th Avenue,
Vancouver, B.C.
V3Y 1K9
(604) 879-4185

Micros provides systems for both fast food and full service restaurants. Has complete stand alone systems which allow the managers to generate reports and information

from any terminal. Western Cash Register B.C. distributors.

Micro-Z Corp.
900 South Magnolia Avenue,
Monrovia, CA 91016
(213) 574-7405

Call accounting system for hotels which provides a full range of reports that aid in cost/analysis and control, night audits and interface with front desk terminals.

Mitel Inc.
1052 Boundary Road,
Burnaby, B.C.
V5K 4W9
(604) 294-0106

A Canadian company which provides a complete range of PBX switches. Mitel's hotel systems which are designed with the specific needs of the hotel industry in mind, they provide numerous management services for any size property.

M.I.T.S.
Multi-Media Interactive Training Systems
15392 Assembly Lane,
Huntington Beach, CA 92649
(714) 898-0840

The MITS system combines video technology with a computer creating a cost effective interactive training system. The VHS cassette contains a lecture-like training session customized for individual businesses. As the system is hooked to a computer, the programme allows for students to give varying degrees of input. There are currently three types of MITS applications: promotional, lecture and interactive.

Murray Hill International Inc. - Travel Consultants
230 Sherman Avenue,
Berkeley Heights, NJ 07922
(201) 464-3300

Murray Hill International and Ellison Data have developed a travel agency accounting system which runs on the IBM System 34. The user friendly system performs a number of functions including trial balances, printing of vouchers (hotel/car) and the posting of all transactions to the general ledger.

Mustang Communications Inc.
966 S.W. Marine Drive,
Vancouver, B.C.
V6P 5Z2
(604) 321-5155

Mustang Communications Inc. is a Canadian owned company

involved in the sale and manufacturing of satellite receivers and systems. Four styles of receivers are manufactured for home and commercial installations.

NABU Manufacturing Corporation
1051 Baxter Road,
Ottawa, Ontario
K2X 3P2

The NABU personal computer can be tied to the T.V. Through subscription to the NABU network, access is provided to NABU's computer programme. The NABU network features: video games, childrens learning programmes, information sources, Nutrition and Shopping Guide and many more programmes.

NEC - Nippon Electric Co. Ltd.
5 Militia Drive,
Lexington, Massachusetts 02173
(617) 862-3120

NEC has developed a call accounting system which has the capability to monitor and analyze phone usage. Stores the call information and the price of the call. INN-ROADS™ can record, price and bill guest calls and prepare accounting reports. Call usage can be traced to departments within the hotel in addition to guest rooms.

New Perspectives Inc.
P.O. Box 18000, Suite 84,
Las Vegas, Nevada 89114
(702) 736-7395

The TC-3 is a call accounting system that allows for accurate billing. Accounts for all guest and administrative calls. Generates 11 different management reports including audit, traffic summaries, and system operating reports.

Official Airlines Guides
2000 Clearwater Drive,
Oak Brook, Ill 60521
(312) 654-6000

A flight information system that provides information on airline schedules and fares via a computer terminal. The Official Airlines Guide Electronic Edition is updated on a regular basis and provides conditions surrounding the various fares.

OKI Electronics of America Inc.
4031 N.E. 12th Terrace,
Fort Lauderdale, Fl 33334
(305) 563-6234

OKI Spectrum 700 telephone system features provide

property/management capabilities for hotel/motel applications including: audit summaries, check in/check out, guest name directory, room status change, do not disturb, message waiting and many other features.

Olitravel
Olivetti Canada Ltd.
3264 Beta,
Burnaby, B.C.
V5G 4K4

Olitravel is a travel agency accounting system and marketing. Accounts receivable, BSP reports, ticket writing, cash receipts journal are a few of the capabilities of the Olitravel system. It can be interphased with the Olivetti typewriter.

Par Microsystems Corporation
Seneca Plaza, Rt. 5
New Hartford, NY 13413
(315) 738-0600

Par Microsystems offers a fast food and full service restaurant point of sales systems and in-store computer system. The in-store computer is designed for greater management control by providing information on: inventory control, labour analysis, cost report and a number of other functions.

Philips Lodging Products Division
580 Winter Street,
Waltham, Massachusetts 02254
(617) 890-7070

The Philips Lodging Product Division allows for TV set protection and smoke detection. A front desk control panel indicates the room number and tests all detectors automatically.

PM Software Incorporated
7061 N.W. 15th Street,
Plantation, Florida 33313-5322
(305) 584-1082

Atlas computerized travel system provides: reservation system interface, ATC reporting, commercial air activity report for commercial clients, branch accounting - for up to four agency offices, record agent activity, accounts receivable, general ledger, financial statements, payroll and mailing list management.

Rand Travel Systems
3200 Scott Boulevard,
Santa Clara, CA 95051
(408) 727-RAND

Rand's Cash Tracking System provides management with

information on available cash for the creation of income through investment on a regular basis. The system handles all of the traditional bookkeeping items, produces sales agent, agency analysis, commercial reports, commission checking and ATC reports.

Remanco Systems Limited
7 Banigan Drive,
Toronto, Ontario
M4H 1G4
(416) 429-6771

B.C. Distributor:

Pacific Coast Systems Ltd.
1620 West 8th Avenue,
Vancouver, B.C.
V6J 1V4
(604) 736-8651

A restaurant system which is designed and manufactured in Canada with Vancouver based support. Provides accurate recording and settlement of all orders at current menu pricing. Provides communication between server and kitchen. A wide range of management reports are produced including: sales mix analysis, labour cost analysis and server productivity.

Reservations West
#202 - 353 Water Street,
Vancouver, B.C.
V6B 1B8
(604) 688-0044

A central reservations system that books hotel reservations in B.C. for the traveller. General information on city sights, activities and events is available. A guest history can be maintained and a general description of the hotel can be printed out for the tourist.

Restaurant Data Services Inc.
8600 W. Bryn Mawr, Suite 200 North,
Chicago. Ill 60631
(312) 693-8945

This system offers an accounting module for restaurants and small hotels/motels. Among the features in the hotel-restaurant software are food and beverage inventory, cost tracking, recipe extension, catering job cost module, sales analysis module/theoretical food and beverage cost.

Restaurant Technics Inc.
1850 K Street, Suite 205,
International Square Building,
Washington, D.C. 20006
(202) 293-9250

This system is applicable to both large restaurant

franchises and to small restaurants with only two cash registers. Each component of the system can "stand alone" and operate as an independent unit, or be integrated into a larger system. RTI's back office system can handle most restaurant needs from inventory and payroll to business forecasting and word processing. This system also allows for the flow of electronic mail between the store and headquarters.

Rolm Telecommunications
4900 Old Ironsides Drive,
Santa Clara, CA 95050
(403) 989-2900

ROLM® manufactures PBC (Private Branch Exchange) telephone switches for a variety of businesses, including hotels. The Rolm system for hotels can interface with a Property Management System. Other features are: message waiting, guest privacy, automatic wake-up and paging systems.

RotoMatic Display Products Ltd.
1600 Aimco Boulevard, Unit #1,
Mississauga, Ontario
L4W 1V1

RotoMatic is the Canadian distributor for Communications and Management Technologies, Inc. The Host-A-Matic and Maitre T' systems keep track of the average dining per tables or by party size. A video display is provided which shows the status of tables. Management reports are also available. The Pizza Call system flashes a number on a large screen, notifying people that their food is ready for pick-up. Ten preprogrammed messages can be displayed.

Saflok
Safekeepers Systems, Inc.
1407 Allen Drive,
Troy, Michigan 48084
(313) 588-7373

An electronic door lock. When each guest checks in, they receive a new and unique key (card) that when inserted into the Saflok cancels out all previously used keys. Print-out of all keys issued. Has the ability to be interphased with any electronic front office management system.

Satellite Video Ltd.
114 - 5910 #6 Road,
Richmond, B.C.
V6V 1Z1
(604) 273-0829

Satellite Video provides equipment for the reception of satellite T.V. When the system is installed in a hotel, each room receives its own satellite television.

The system allows for payment by the guest for viewing specific programmes with charges automatically recorded to the appropriate room.

Scientific Atlanta
Box 105038
Atlanta, GA 30348
(404) 441-44112

Energy Management system designed for use within hotels and motels and businesses. Allows for control of heating and air conditioning systems as guests check in and out, room status display, also manufactures and designs satellite receiving dishes.

Security Systems:

Uniqey™ International
1919 South Susan Street,
Santa Ana, CA 92704
(714) 979-9100

An electronic security system. Offers a programmed card to replace the standard metal key. Has a unique code for each room which can be changed if the card is lost or stolen.

Marlock
All-Lock Electronics Inc.
P.O. Box 3042,
North Brunswick, New Jersey 08902
(201) 545-7000

Computerized room keying system. Can void lost keys instantly and rekey all rooms in a number of seconds. Offers energy management systems and smoke detector systems.

Series 1 Ltd.
3002 Winegard Drive,
P.O. Box 639,
Burlington, Iowa 52601
(319) 752-0061

Developed the FrontDesk System for use by small motels and hotels on the IBM personal computer. The FrontDesk system consists of 3 subsystems: 1) Reservations Management, 2) Room Status, 3) Guest Accounting.

Auditel™ (a subsidiary of Series 1) Lodging Management System is for use in 80 to 350 rooms. Features front and back office systems with optional programmes including: guest history programme, point of sale, energy management, time and attendance, phone call accounting.

Sykes Datatronics Inc.
159 East Main Street,
Rochester, NY 14604
(716) 325-9000

Since 1968 Sykes™ has been developing data communications and information processing systems. Plans to expand into Canada in the near future. Offers a telephone accounting system which can trace calls to a specific room. Can input guest call records into most major property management systems.

Solutions Plus Inc.
Suite 303 - 15 Merritt Island Causeway,
Merritt Island, Florida 32952
(305) 453-0909

Menu-10 is a computerized restaurant management system designed for use on Data General Computers. Features accounting functions, sales analysis and inventory management. Employee records can also be kept.

The Source Telecomputing Corporation
1616 Anderson Road,
McLean, VA 22102
(403) 734-7500

The Source™, a videotex service, provides information on news, business, communications, games and travel. The electronic travel service allows for car rentals, ordering airline tickets and hotel reservations. Restaurant and weather information is available for cities and towns all across North America.

SpectraVision International - pay for view TV
4560 Fieldgate Drive,
Mississauga, Ontario
L4W 3W6
(416) 629-1133

Offers pay-per-view closed circuit TV systems. Has Traveller Service Programmes available which offer information on local events and points of interest. Message centre for daily news, weather information and financial bulletins. Uses TV to computer interface that allows for expansion as technology develops.

Summa Four, Inc.
2456 Brown Avenue,
Manchester, New Hampshire 03103
(603) 625-4050

Summa Four Inc. designs, manufactures and markets communications systems for many different end users application. The PCX series are telephone call and accounting systems that operate on any hotel and motel telephone system. Calls are costed and delivered either to a printer immediately upon completion or they are stored for future retrieval.

SWEDA International
4700 Dixie Road,
Mississauga, Ontario
L4W 2R1
(416) 624-5111

B.C. Distributor:

Western Cash Register, Inc.
338 West 6th Avenue,
Vancouver, B.C.
V3Y 1K9
(604) 879-4185

SWEDA offers a variety of cash register like systems for restaurants, hotels and bars. Their fine dining system allows for front desk interface, server accountability, tip tracking reporting, and management reports. SWEDA has support service across Canada.

Systems Integration Management Company
325 South Maryland Parkway
Las Vegas, Nevada 89101
(702) 384-7641

The ReMacs system is designed primarily to give increased restaurant management information. Reports include inventory, labour cost, food cost, sales analysis, payroll and financial.

Telematic Products Inc.
5000 148th Avenue N.E.
Redmond, WA 98052
(206) 882-5000

Telematic call accounting systems is available for 20 to 250 lines. The system allows for: production of telephone bills on demand, evaluation of facility performance, management of client billback and summarization of billing activity.

Telici Inc.
1717 Walnut Hill Lane,
Irving, Texas 75062
(214) 659-1166

Telici, a distributor of telecommunications systems that sells, services and installs interconnect systems. Offers call accounting, wakeup and energy management systems for use within hotel/motels.

Teltone Limited®
150 - 10451 Shellbridge Way,
Richmond, B.C.
V6X 2W8
(604) 276-2772

The Guest-Comm systems was developed by Teltone® with

smaller hotels, motels and resorts in mind. It can serve properties from 4 to 75 rooms. Amongst the features offered are: message waiting, remote answer, tou restrictions and paging (optional).

Tokyo Electric Canada Ltd. (TEC)
9 - 3331 Viking Way,
Richmond, B.C.
V6V 1X7
(604) 270-1511

Tokyo Electric provides a variety of cash registers with several designed specifically for bar and restaurant applications. The M-2400 allows for 30 servers and features tip tracking ability.

Totel Systems Inc.®
785 Woodend Road,
Stratford, CT 06497
(203) 374-9271

Totel Systems Inc. has developed a variety of micro processor based systems which are telephone connected. The Hotel Management System provides information in the areas of: room management, guest reservations and guest registrations. Other telephone connected functions available are: automatic wake-up, message waiting, energy control, property management and many others.

Touch Dialogues Inc.
333 W. Drake Road, Suite 32,
Fort Collins, Co 80526
(303) 223-7180

The Touchware-100™ System features a touch sensitive TV like screen that allows the general public or guests to simply "touch" words or phrases in order to retrieve information stored in a micro computer. Each owner can customize the information in accordance with needs of his particular property.

TOWA Corporation of America
1711 S. Pennslyvania Avenue,
Morrisville, PA 19067
(215) 295-8103

B.C. Distributor:

Donovan Sales Ltd.
1135 East Hastings Street,
Vancouver, B.C.
V6A 1S3
(604) 254-4777

The Profitron series of Electronic Cash Registers was specifically designed for the Hospitality Industry. Programmes are available for fast food, fine dining, front desk, charge posting and many other possibilities.

Travel Agency Systems®
P.O. Box 1080
10300 S. De Anza Boulevard
Cupertino, CA 95014
(408) 255-8401

The TASCOM System interfaces with Apollo, Sabre, Soda and Pars. Features: the report generator - produces customer and accounting reports, group management, eliminates much of the manual work involving group documentation, accounting and control. The text management system can be used to produce letters, labels and listings. Multi-office agencies can be accommodated as well as smaller operations.

Travel Management Systems Inc.
873 Sutter Street,
San Francisco, CA 94190
(415) 441-6817

Travel Management System provides software designed by people in travel for a number of areas in the travel industry. Tour operator systems, cruise line systems, convention and incentive travel systems, retail travel systems and rent-a-car systems are all available.

Travel Resources Inc.
681 Market Street, Suite 649,
San Francisco, CA 94105
(415) 777-9494

An automated accounting system, automatic posting of each sale to accounts receivable, customer analysis, staff sales reports and general ledger. This system is available for both large and small agencies.

Travel 'Scan Videotex Ltd.
5 Penn Plaza,
New York, NY 10001
(212) 695-5492

Travel 'Scan is a Videotex service that supplies air schedules, tours, rates, hotel information, car rentals and other travel information to subscribers via a computer terminal. Allows for reservations to be made via the terminal.

Turnkey Interactive Management Systems, Inc. (TIMS)
Meadows Office Complex,
Rutherford, New Jersey 07070
(201) 933-9222

A multi-function accounting package available as in-house time sharing or a multi-branch system with airline reservations system interfaces available. There are five different TIMS systems: TIMS Travel Reservations and Accounting System, TIMS Retail Travel Accounting System, TIMS Cruise Lines System, TIMS Auto Rental System

and TIMS Hotel Rep System. A Canadian branch office is planned for 1984.

TWA
605 Third Avenue,
New York, NY 10158

TWA has three automated systems available for travel agents: i) PARS - a worldwide automated reservation systems with airline, hotel, and car reservations, ii) PARS II - a multi-access reservation system for participating carriers, iii) PARS-PAC combines the features of PARS with an accounting system which generates management reports. TWA systems are currently not available in Canada.

Tymshare®

Offers four travel Management Systems:

1) MARPLUS™ - the travel agency automation system. Not owned by an airline allows independent access to a broad range of travel suppliers.
2) PARS II - reservations access to retail travel agents.
3) TS 2000 - business management and accounting for travel retailers. Interfaces with MARSPLUS
4) FIRST - inventory management, reservation, customer documentation and accounting for wholesalers and retail group operators.

Unique Information Systems Inc.
221 N. LaSalle
Chicago, Illinois 60601
(312) 332-2820

Hotel-2000® is a CP/M (Control Programme/Microcomputer) based hotel management system. It includes all the specific hotel functions: reservations, reception and billing in one integrated package. Each module may also be purchased separately and any of the widely available CP/M back-office applications (accounting, payroll, word processing, inventory, etc.) may be added.

United Airlines
Seattle Tacoma International Airport
Seattle, Washington 98158

The Apollo Airlines reservation system is a comprehensive reservation system allowing access to hotels, car rental agencies and a large number of international and domestic carriers. Travel information is available with information on currency exchange, ski hill guide and weather. The Apollo business system has functions for travel agency accounting and management information.

United Technologies
2006 Whitfield Industrial Way,
Sarasota, Florida 33580
(813) 753-6411

There are two packages for hotel and motel call accounting applications from United Technologies:
1) An application package that will collect, process, store, summarize, sort and report Station Message Detail Records from a PABX on-site and on demand or automatically.
2) Separates guest and administrative calls and prices them using different rates.

Video Brochures International, Inc.
1605 John Street,
Fort Lee, New Jersey 07024
(201) 947-9211

VBI offers travel agencies in Canada and the United States the "VBI Video Brochure" system on a subscription basis. The VBI "Video Brochure" library is available to VBI subscribers and contains individual video brochures of hotels, destination, cruises, etc.

Viewdata Corporation of America, Inc.
1111 Lincoln Road,
Miami Beach, Florida 33139
(305) 674-1444

The Viewtron® System allows consumers to bank, shop, participate in educational programmes, receive news reports, mail and stock market reports in their own home. The system can be accessed through a videotex composed of the Americal Bell Sceptre™ terminal, a colour TV set and a telephone with modular wiring. The system is currently available on limited geographic areas in the United States.

Walker Holidays Ltd.
5100 Poplar Avenue (Suite 610),
Memphis, Tennessee 38137
(901) 767-7400

Walker Holidays developed the Group Reservations and Information Planning System (GRIPS) for use on Wang computers. Invoicing, accounts receivable, ticket writing, sales analysis and group processing. Also available are: itinerary writer for personal or group itineraries, currency conversion programmes and a file of all city and airport codes. Profitability listing, account summaries, air sales journal are a few of the reports available.

Wang Canada, Ltd.
4400 Dominion Street, Suite 102,
Burnaby, B.C.
V5G 4G3
(604) 435-5521

Wang laboratories markets a versatile line of office automation systems from stand alone word processors to integrated office information systems. Reservation, room management and office accounting for hotels and motels.

Warner Amex Cable Communications
75 Rockefeller Plaza,
New York, New York 10019

QUBE is a two way cable TV network which enables the viewer to become involved in a TV programme by pressing buttons on a small home console which is linked to a central computer. The computer instantly registers each response and flashes the results within seconds on the home TV screen. QUBE allows for pay-per-view programming and acts as a security device.

Western Airlines
Seattle Tacoma International Airport,
Seattle, Washington 98158

Western's Direct Access Reservations Terminal (D.A.R.T.) is available on a limited basis to travel agents in the United States. The D.A.R.T. system allows access to Western's computer system. The agent is then able to sell Western's and other airlines' flights directly and access a wide scope of travel information.

Westwood Micro Systems
1041D Ridgeway,
Coquitlam, B.C.
V3J 1S6
(604) 936-6325

Westwood has developed a food and beverage system with capabilities to interface with a variety of cash registers. Allows for inventory control, menu costing, cost revenue analysis, usage analysis, ingredient portion analysis and many other restaurant management functions.

Peter Zandron and Associates Ltd.
Suite #1, 265 - 25th Street,
West Vancouver, B.C.
V7V 4H9
(604) 926-7766

The Hotel Management Informations System is a menu-driven system consisting of the following modules: on-line reservations, interactive front desk, automated night audit, accounts receivable, accounts payable and general ledger. Additional programmes are available for word processing or payroll.

APPENDIX 2

INTERVIEWS

"A"

Frank Addison
President
Addison Travel Marketing

Curt D. Anderson
Videotex Marketing Programs Manager
Communications Marketing Group
Digital Equipment Corporation

Don Arnold
D.J. Arnold & Associates
Recreation Planning Consultants

Roy Atkinson
Director of Marketing
Infomart "Teleguide"

"B"

Dr. Henry Bain
Transportation Consultant
and Urban Planner
Columbia Maryland

Jay Barrie
Development Analyst
Regasus Reservation Systems
CP Air

Robert W. Behnke
President
Aegis Information Systems Inc.
Auto-Ride Consultants

Graham Bell
Managing Director
South Western Tourist Association

Terry Bellinger
Director Customer Services
Datex Services Limited

Dave Bowman
Communications Research Scientist

Roy Bright
Managing Director
Intelmatique (France)

"C"

Don Cameron
Marketing Officer
Tourism Canada

Wayne Carter
Director Information Services
Ministry of Tourism
British Columbia

Brian Casey
(TIS)
External Affairs

Z. Clark
General Manager
B.C. & Pacific Northwest
Air Canada

Michael P. (Mick) Collins
Director
Policy, Development and Planning Branch
Ministry of Tourism
British Columbia

M.M. Coltman, M.B.A., C.G.A.
Department Head
Hospitality & Tourism Administration

John Currie
Assistant Deputy Minister Operations
Tourism British Columbia

"D"

A.W. (Wayne) Dale
Director Agency Automation
CP Air

David P. Duckworth
Area Sales Manager
AT & T Information Systems

John Dye
General Manager
Sheraton Landmark

"F"

Stephen K. Fane
Partner
Coopers & Lybrand
Chartered Accountants

"H"

Earl J. Hansen
Managing Director
B.C. Motel, Resort & Trailer Park Association

Andrew M. Harper
Sales Manager
Business Telecom Equipment
Division of B.C. Telephone

Amir Hirji
Account Manager
Farwest Systems Corp.

Michael Horsey
Deputy Minister
Tourism British Columbia

David Humphreys
Editor
Computing Canada

"J"

Rick Jacobsohn
Sales Manager - Hal Systems
Western Region
MDS Quantel Business Computers

Art Jones
General Manager
Greater Vancouver Convention & Visitors Bureau

"K"

Dr. John Kain
Author and Consultant
Harvard University

R.W. Keyes, B. Comm., M. Com.
Consulting Economist

Cornelia King
Marketing Planning Supervisor
B.C. Telephone Company

"L"

John H. Lawson
Director, Marketing and Industry Development
Tourism Industry Association of Canada

Rick Lemmon
Director Education Services
Tourism British Columbia

Arlen Richard Lessin
Chairman and President
Smartcard International Inc.

Michael Levy
Hospitality Systems Consultant
Western Cash Register, Inc.

J.A.A. Lovink
Assistant Administrator
Policy and Strategic Planning, Air
Transport Canada Air

Bill J. Luce, Jr.
Group Manager
Videotex Services
GTE Service Corporation

"Mc" Robert J. McCauley
Vice-President
Westin Hotels

Doug McIntosh
President
Tourism Industry Association of B.C.

Malcolm S. McLeod, Jr.
State Transportation Economist
State of Hawaii

Keith McPherson
B.C. Innovations Office
Office of Science Council of B.C.

"M" Ted Madole
District Manager
Hospitality Division B.C.
NCR Canada Ltd.

Lloyd Manual
Managing Director
B.C. Hotels Association

Peter Maundrell
Marketing Officer
Tourism Canada

"O" Fred Oakley
Past General Manager
Greater Vancouver Convention & Visitors Bureau
(Art Jones
General Manager
Greater Vancouver Convention & Visitors Bureau)

Dr. Adam Osborne
Chairman of the Board
Osborne Computer Corporation

"P"

E. Lynn Patterson
General Manager
Business Telecom Equipment
Division of B.C. Telephone

A.R. Proskow
B.C. Area Sales Manager
CNCP Telecommunications

"R"

Dr. James D. Rae
Past Deputy Minister
Ministry of Tourism
British Columbia

David J. Roberts
President
Media Videotex Corp.

David Roberts
President
CTS Computer Systems (Vancouver) Inc.
Qantel Computers

W.J.A. (Bill) Rowe
Vice-President - Western Region
Air Canada

"S"

David N.G. Savage
District Manager
British Airways

Robert S. Simons
Market Manager - PBX
Business Telecom Equipment
Division of B.C. Telephone

Tom Stubbs
Masters' Candidate
School of Community & Regional Planning
University of British Columbia

"T"

Edwin J. Theobald
General Manager
Hyatt Regency Vancouver

Peter B. Thomson
Vice-President Marketing
Discovery Parks Incorporated

"W"

J.M. Wade
Manager, External Programs
Western Region
I.B.M.

Dr. John Walksy
Executive Director
Data/Net

Dr. Melvin Webber
Institute of Urban and Regional Development
UC - Berkley

Brian Wills
Ernst & Whinney
Management Consultants

Don Wismer
Director Trade and Tourism
Government of Canada

Janet Wilson, M.B.A.
Project Development Manager
Agency Automation
CP Air

J. David Wright
Bureau of Management Consulting
Supply and Services Canada Government

"Y" Darryl J. Yea, B. Comm.
Laventhol & Horwath
Management Consultants

APPENDIX 3

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POOR

QUALITY

ORIGINAL